ABOUT THIS MANUAL

Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

SAFETY INSTRUCTIONS

⚠ **WARNING: This chapter contains important safety and operating instructions. Read and keep this manual for future reference.**

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION** --To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION** – Only qualified personnel can install this device with battery.
6. **NEVER** charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
8. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
9. Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
10. One piece of 150A fuse is provided as over-current protection for the battery supply.
11. GROUNDING INSTRUCTIONS -This inverter/charger should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
12. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
13. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
14. **WARNING:** Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
15. **CAUTION:** It's requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

CamScanner

INTRODUCTION

This is a multi-function inverter/charger, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.

Features

- Pure sine wave inverter
- Built-in BMS communication port
- Built-in anti-dust kit
- Inverter running without battery
- Configurable input voltage range for home appliances and personal computers via LCD setting
- Configurable battery charging current based on applications via LCD setting
- Configurable AC/Solar Charger priority via LCD setting
- Compatible to mains voltage or generator power
- Overload/ Over temperature/ short circuit protection
- Smart battery charger design for optimized battery performance
- Built-in WiFi for mobile monitoring (Requires App), USB port, anti-dusk filters, OTA
- Multiple communication ports for BMS (RS485, CAN-BUS, RS232)
- Feeding power into Grid
- Battery independent design
- PV, Grid and Battery energies generation and consumption data

Basic System Architecture

The following illustration shows basic application for this inverter/charger. It also includes following devices to have a complete running system:

- Generator or Utility.
- PV modules

Consult with your system integrator for other possible system architectures depending on your requirements.

This inverter can power all kinds of appliances in home or office environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioner.

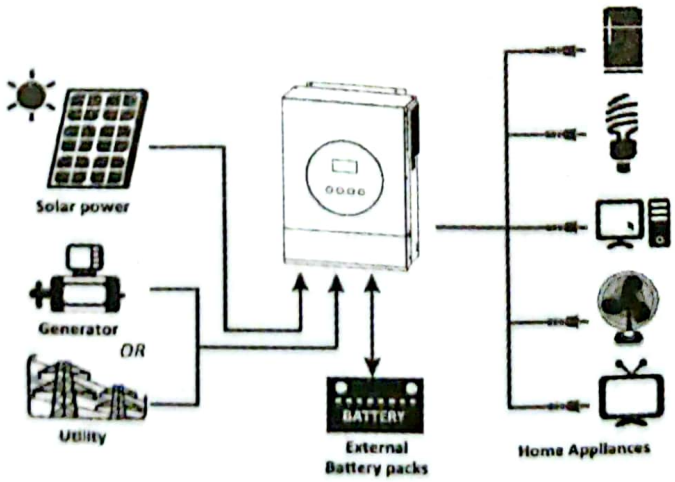
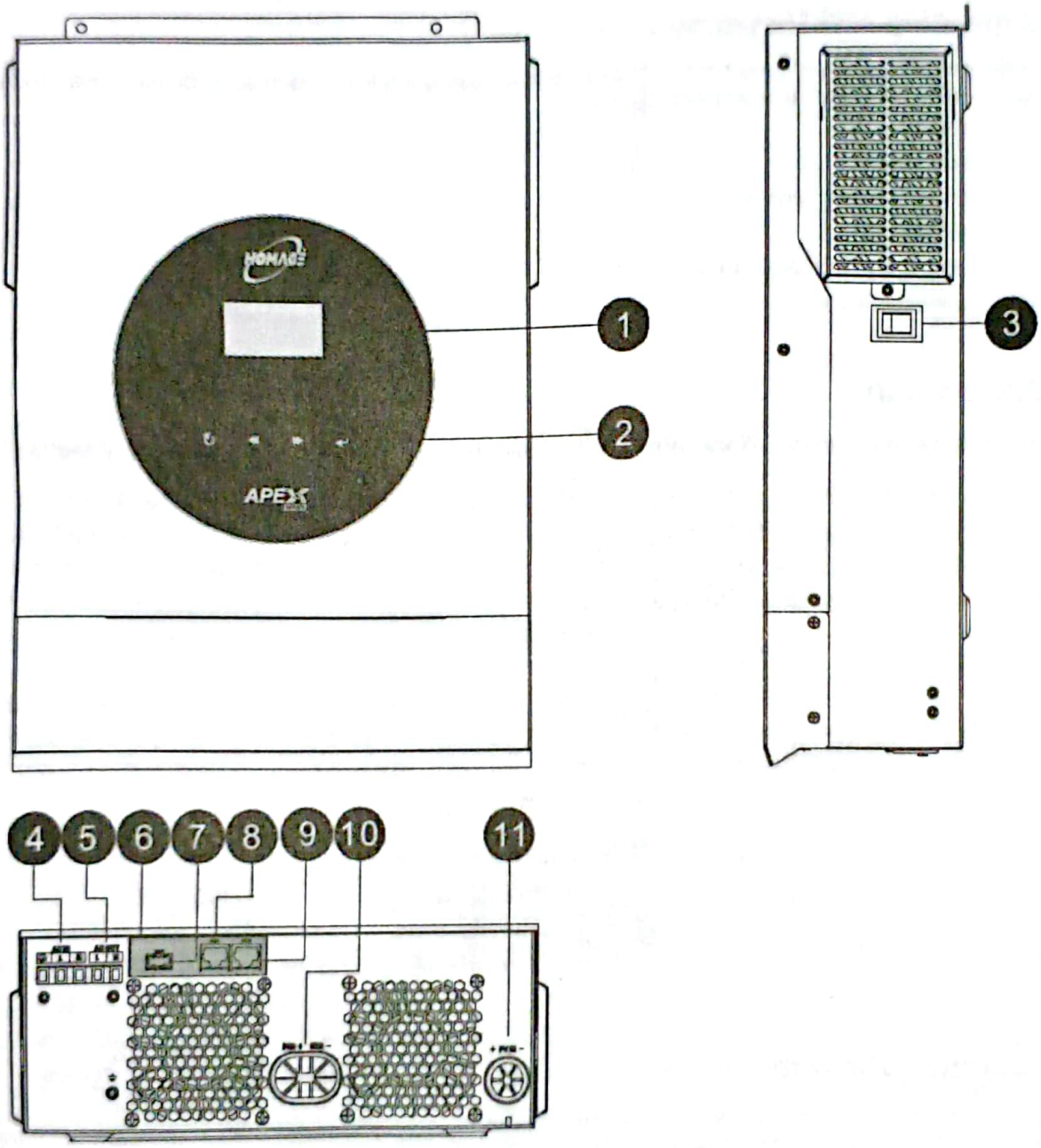


Figure 1 hybrid Power System

CamScanner

Product Overview



1. LCD display
2. Function keys
3. Power on/off switch
4. AC input
5. AC output
6. WIFI
7. USB port / OTG function
8. communication port(BMS)
9. communication port(RS-232)
10. Battery input
11. PV input

CamScanner

INSTALLATION

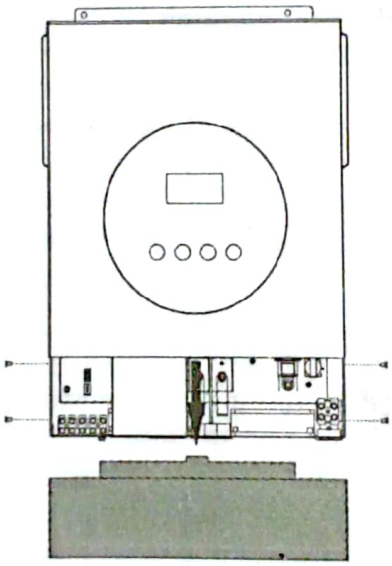
Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package:

- The unit x 1
- User manual x 1
- Communication cable x 1
- Software CD x 1
- Ring terminal for Ground x 1
- Warranty card x 1

Preparation

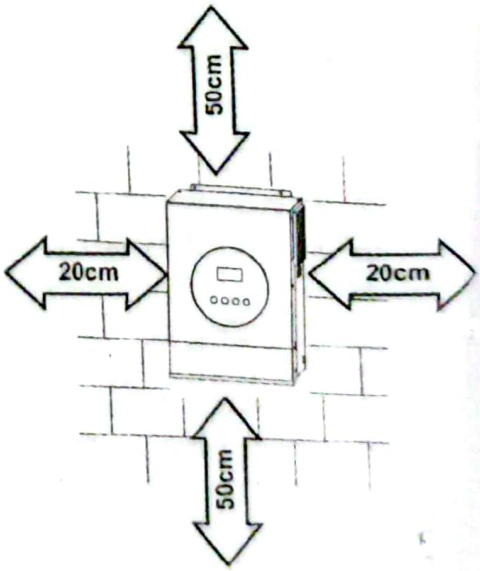
Before connecting all wirings, please take off bottom cover by removing screws as shown below.



Mounting the Unit

Consider the following points before selecting where to install:

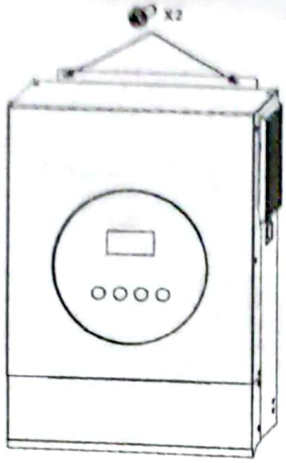
- Do not mount the inverter on flammable construction materials.
- Mount on a solid surface
- Install this inverter at eye level in order to allow the LCD display to be read at all times.
- For proper air circulation to dissipate heat, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit.
- The ambient temperature should be between 0°C and 55°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.



⚠ **SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.**

CamScanner

Install the unit by screwing two screws. It's recommended to use M4 or M5 screws.



Battery Connection

This model can be operated without battery connection. Connect to battery if necessary.

CAUTION: For safety operation and regulation compliance, it's requested to install a separate DC over-current protector or disconnect device between battery and inverter. It may not be requested to have a disconnect device in some applications, however, it's still requested to have over-current protection installed. Please refer to typical amperage in below table as required fuse or breaker size.

WARNING! All wiring must be performed by a qualified personnel.

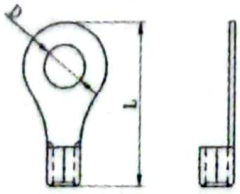
WARNING! It's very important for system safety and efficient operation to use appropriate cable for battery connection. To reduce risk of injury, please use the proper recommended cable as below.

Recommended battery cable size:

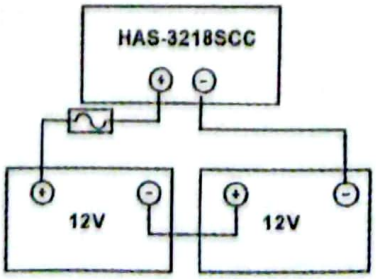
Model	Wire Size	Cable (mm^2)	Torque value (max)
HAS-3218SCC	1 x 2AWG	35	2 Nm

Please follow below steps to implement battery connection:

1. refer to recommended battery spec table to purchase separately two ring terminals and battery wires. Assemble two ring terminals with battery wires based on recommended battery cable and terminal size as grounding cable. Recommended dimensions for ring terminal is D (8.4 mm) and L (39.2 mm).

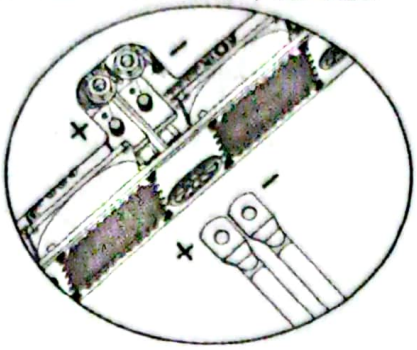


2. Connect all battery packs as below chart. It is recommend to connect at least 100Ah capacity battery.



CamScanner

3. Secure assembled ring terminals to the battery terminal block with the bolts properly tightened. Refer to battery cable size for torque value. Make sure polarity at both the battery and the inverter is correctly connected and ring terminals are secured to the battery terminals.



⚠	**WARNING: Shock Hazard** Installation must be performed with care due to high battery voltage in series.

⚠	**CAUTION!!** Do not place anything between inverter terminals and the ring terminals. Otherwise, overheating may occur. **CAUTION!!** Do not apply anti-oxidant substance on the terminals before terminals are securely tightened. **CAUTION!!** Before making the final DC connection or closing DC breaker/disconnector, be sure positive (+) must be connected to positive (+) and negative (-) must be connected to negative (-).

AC Input/Output Connection

CAUTION!! Before connecting to AC input power source, please install a **separate** AC breaker between inverter and AC input power source. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input. The recommended spec of AC breaker is 20A.
CAUTION!! There are two terminal blocks with "IN" and "OUT" markings. Please do NOT mis-connect input and output connectors.

WARNING! All wiring must be performed by a qualified personnel.
WARNING! It's very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

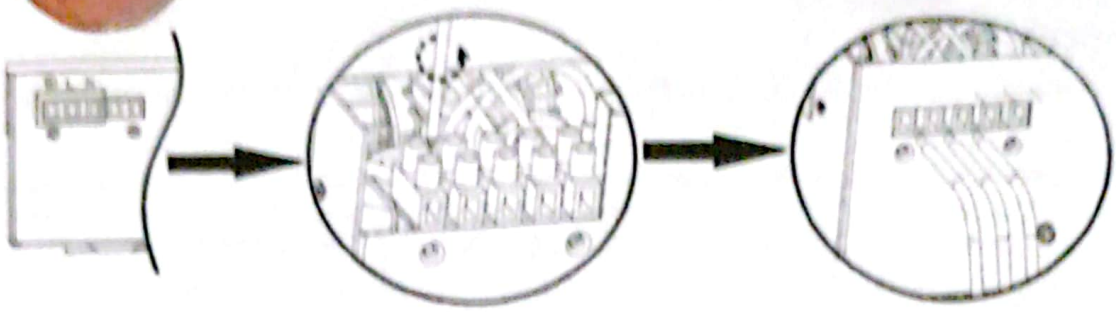
Suggested cable requirement for AC wires

Model	Gauge	Cable (mm^2)	Torque Value
HAS-3218SCC	14 AWG	2.5	0.6 Nm

Please follow below steps to implement AC input/output connection:

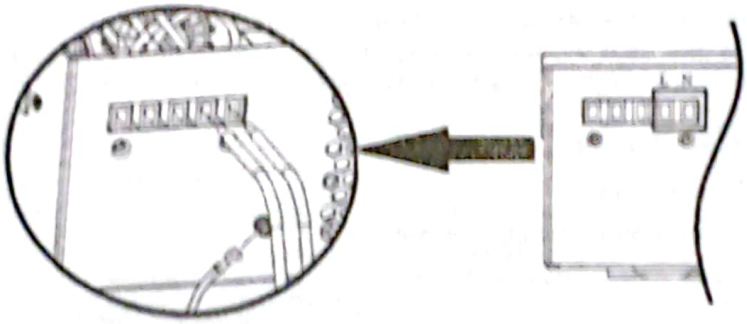
1. Before making AC input/output connection, be sure to open DC protector or disconnector first.
2. Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N 3 mm.
3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect PE protective conductor (⏚) first.
   ⏚→**Ground (yellow-green)**
   L→LINE (brown or black)
   N→Neutral (blue)

CamScanner



WARNING:
Be sure that AC power source is disconnected before attempting to hardwire it to the unit.

4. Then, insert AC output wires according to polarities indicated on terminal block and tighten terminal screws. Be sure to connect PE protective conductor (⏚) first.
   ⏚→Ground (yellow-green)
   L→LINE (brown or black)
   N→Neutral (blue)



5. Make sure the wires are securely connected.

CAUTION: Appliances such as air conditioner are required at least 2~3 minutes to restart because it's required to have enough time to balance refrigerant gas inside of circuits. If a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check manufacturer of air conditioner if it's equipped with time-delay function before installation. Otherwise, this inverter/charger will trig overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner.

CamScanner

PV Connection

CAUTION: Before connecting to PV modules, please install **separately** a DC circuit breaker between inverter and PV modules.

WARNING! It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Model	Wire Size	Cable (mm^2)	Torque value (max)
HAS-3218SCC	1 x 12AWG	4	1.2 Nm

WARNING: Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated and CIGS modules.
To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.

CAUTION: It's requested to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.
Never directly touch the terminals of inverter. It might cause lethal electric shock.

PV Module Selection:

When selecting proper PV modules, please be sure to consider below parameters:

1. Open circuit Voltage (Voc) of PV modules not exceeds max. PV array open circuit voltage of inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than min. battery voltage.

INVERTER MODEL	HAS-3218SCC
Max. PV Array Power	5000W
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	60~450Vdc
Start-up Voltage	70Vdc +/- 10Vdc
Max. PV Current	18A

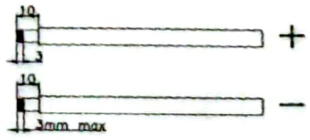
Take 585Wp PV module as an example. After considering above two parameters, the recommended module configurations are listed as below table.

Solar Panel Spec. (reference) - 585Wp - Vmp: 43.3Vdc - Imp: 13.52A - Voc: 52.4Vdc - Isc: 14.00A	SOLAR INPUT (3.2KW models: Min in serial: 2 pcs, max. in serial: 9 pcs;)	Q'ty of panels	Total input power
	2 pcs in serial	2 pcs	1170W
	4 pcs in serial	4 pcs	2340W
	6 pcs in serial	6 pcs	3510W
	8 pcs in serial	8 pcs	4680W
	9 pcs in serial	9 pcs	5265W

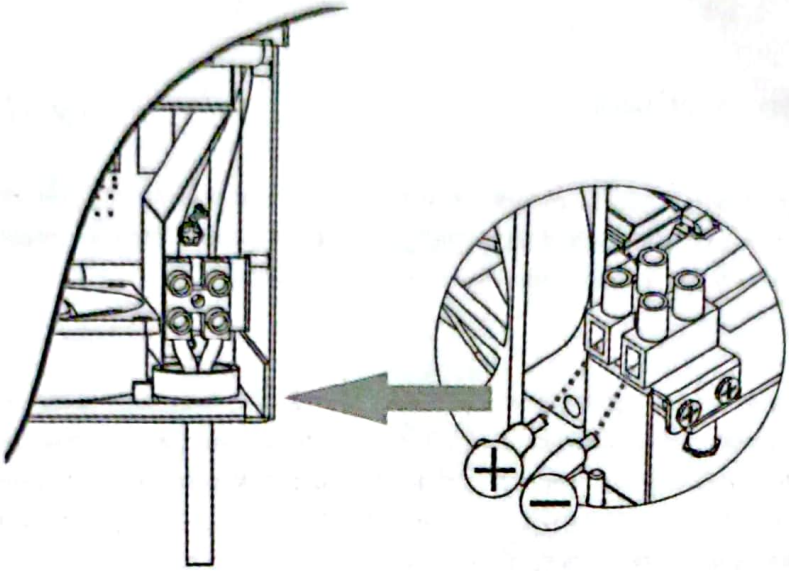
PV Module Wire Connection

Please follow below steps to implement PV module connection:

1. Remove insulation sleeve 10 mm for positive and negative conductors.
2. Suggest to put bootlace ferrules on the end of positive and negative wires with a proper crimping tool.
3. Check correct polarity of wire connection from PV modules and PV input connectors. Then, connect positive pole (+) of connection wire to positive pole (+) of PV input connector. Connect negative pole (-) of connection wire to negative pole (-) of PV input connector. Screw two wires tightly in clockwise direction.
   Recommended tool: 4mm blade screwdriver

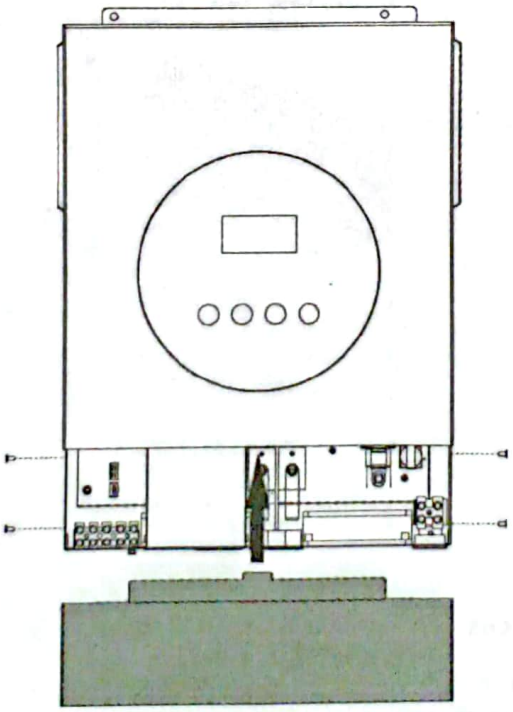


CamScanner



Final Assembly

After connecting all wirings, please put bottom cover back by screwing screws as shown below.



CamScanner

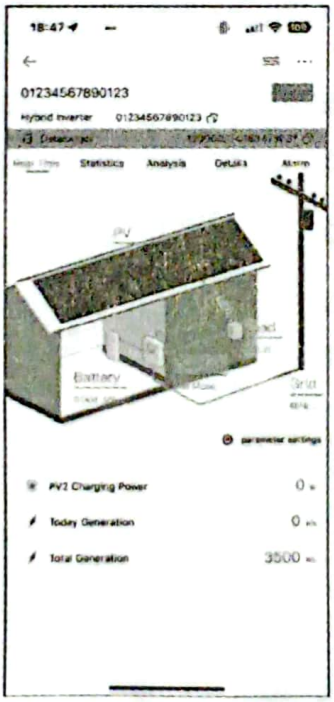
Communication Options

Serial Connection

Please use the supplied serial cable to connect between the inverter and your PC. Install the monitoring software from the bundled CD and follow the on-screen instructions to complete your installation. For detailed software operation, refer to the software user manual on the bundled CD.

Wi-Fi Connection

Wi-Fi module can enable wireless communication between hybrid solar inverters and the monitoring platform. Users can remotely monitor and control their inverters when they combine the Wi-Fi module with Energy-Mate APP. The App uses the Wi-Fi chip to provide remote monitoring data services, which is beneficial for the daily data monitoring of the inverter, querying the real-time data in the device, sending commands from the device, and operating the device remotely. The app is available for both iOS and Android.



BMS Communication

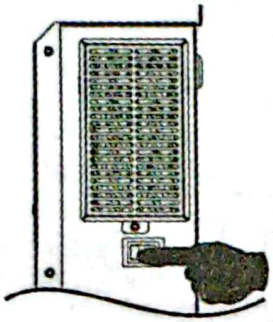
It is recommended to purchase a special communication cable if you are connecting to Lithium-Ion battery banks. Please refer to Appendix B- BMS Communication Installation for details.

CamScanner

OPERATION

Power ON/OFF

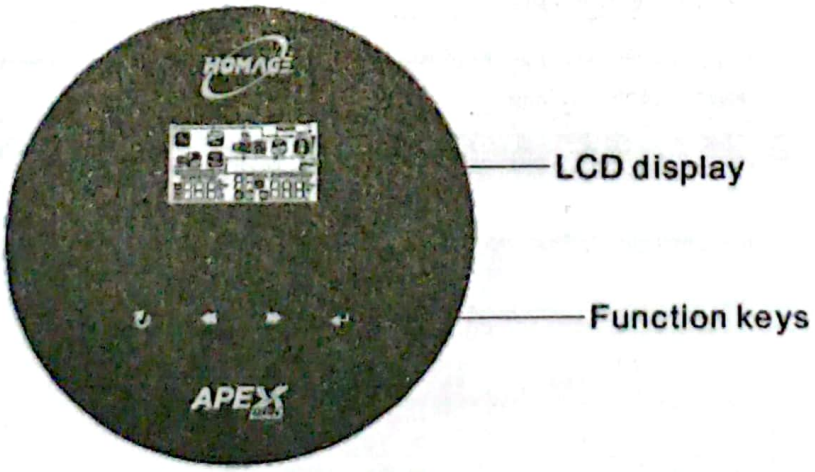
Side view of unit



Once the unit has been properly installed and the batteries are connected well, simply press On/Off switch (located on the button of the case) to turn on the unit.

Operation and Display Panel

The operation and display panel, shown in below chart, is on the front panel of the inverter. It includes three indicators, four function keys and a LCD display, indicating the operating status and input/output power information.



Function Keys

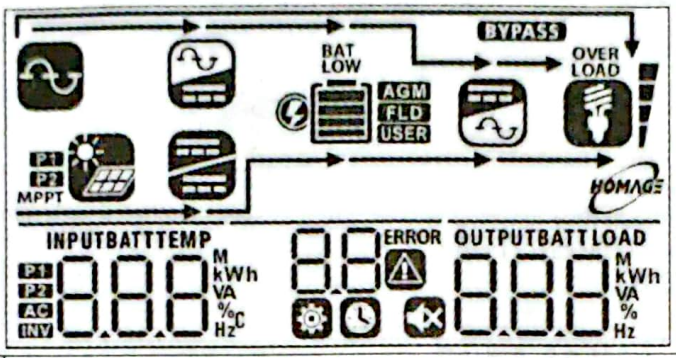
Function Key	Description
↺	To exit setting mode
◀◀	To go to previous selection
▶▶	To go to next selection
↵	To confirm the selection in setting mode or enter setting mode

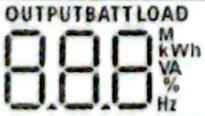
CamScanner

LED Indicator

LED Indicator	Messages
Green solid on	Unit work in normal(without fault code, warning code and charging)
Green/Yellow alternatively flashing	Battery is being charged
Yellow solid on	Unit has any warning code
Red solid on	Fault mode

LCD Display Icons



Icon	Function description
Input Source Information	
AC	Indicates the AC input.
P1	Indicates the PV input
	Indicate input voltage, input frequency, PV voltage, charger current, charger power, battery voltage.
Configuration Program and Fault Information	
	Indicates the setting programs.
	Indicates the warning and fault codes. Warning: flashing with warning code. Fault: lighting with fault code
Output Information	
	Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.
Battery Information	
	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% and charging status.
AGM FLD USER	Indicates the battery type: AGM, Flooded or User-defined battery.

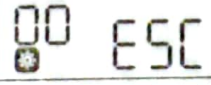
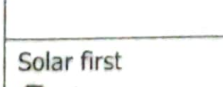
CamScanner

Load Information				
	Indicates overload.			
	Indicates the load level by 0-24%, 25-49%, 50-74%, and 75-100%.			
	0%~25%	25%~49%	50%~74%	75%~100%
Mode Operation Information				
	Indicates unit connects to the mains.			
	Indicates unit connects to the 1st PV panel			
	Indicates the utility charger circuit is working.			
	Indicates the solar charger is working			
	Indicates the DC/AC inverter circuit is working.			
Mute Operation				
	Indicates unit alarm is disabled.			

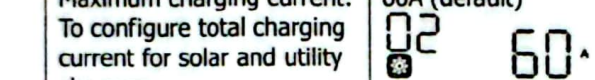
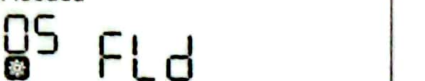
LCD Setting

After pressing and holding ENTER button for 3 seconds, the unit will enter setting mode. Press "Left" or "Right" button to select setting programs. And then, press "ENTER" button to confirm the selection or ESC button to exit.

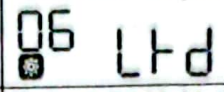
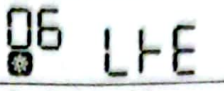
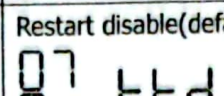
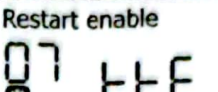
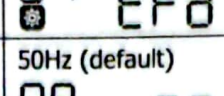
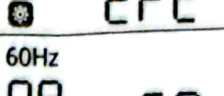
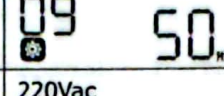
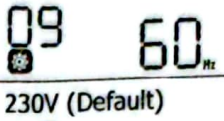
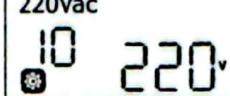
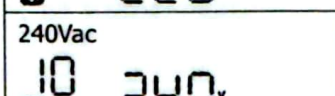
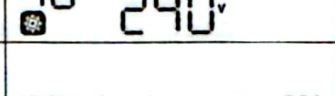
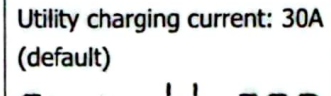
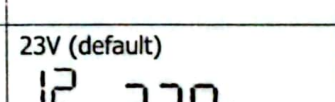
Setting Programs:

Program	Description	Selectable option	
00	Exit setting mode	Escape 	
01	Output source priority: To configure load power source priority	Utility first (default)	Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.
		Solar first 	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.

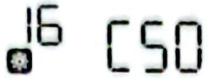
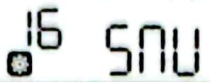
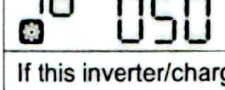
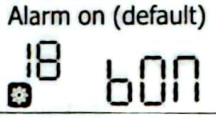
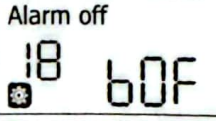
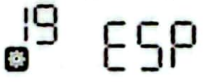
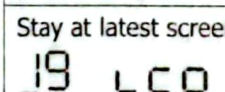
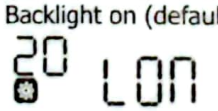
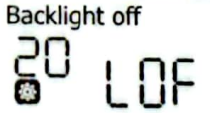
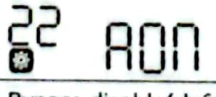
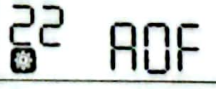
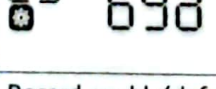
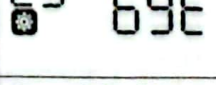
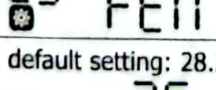
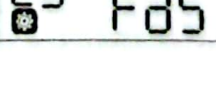
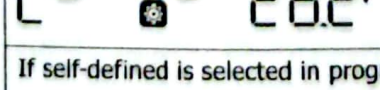
CamScanner

		SBU priority 	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12.
02	Maximum charging current: To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	60A (default) 	Setting range is from 10A to 120A. Increment of each click is 10A.
03	AC input voltage range	Appliances (default) 	If selected, acceptable AC input voltage range will be within 90-280VAC.
		UPS 	If selected, acceptable AC input voltage range will be within 170-280VAC.
05	Battery type	AGM (default) 	Flooded 
		User-Defined 	If "User-Defined" is selected, battery charge voltage and low DC cut-off voltage can be set up in program 26, 27 and 29.
		Pylontech battery 	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		LIA-protocol compatible battery 	Select "LIA" if using Lithium battery compatible to CAN protocol. If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		LIb-protocol compatible battery 	Select "LIb" if using Lithium battery compatible to RS485 protocol. If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		3rd party Lithium battery 	Select "LIC" if using Lithium battery not listed above. If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.

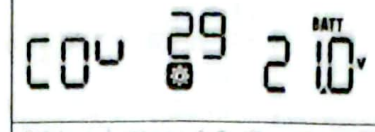
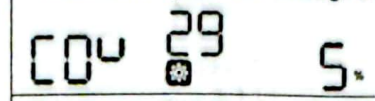
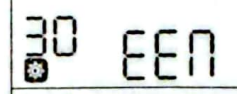
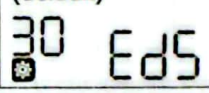
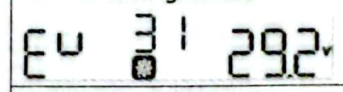
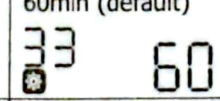
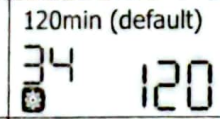
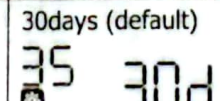
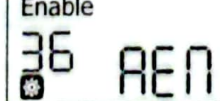
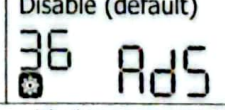
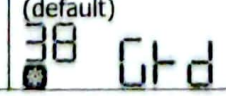
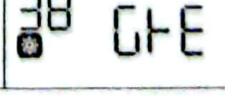
CamScanner

06	Auto restart when overload occurs	Restart disable(default) 	Restart enable 
07	Auto restart when over temperature occurs	Restart disable(default) 	Restart enable 
09	Output frequency	50Hz (default) 	60Hz 
10	Output voltage	220Vac 	230V (Default) 
		240Vac 	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	Utility charging current: 30A (default) 	Setting range is 2A, then from 10A to 80A. Increment of each click is 10A.
12	Setting voltage point back to utility source when selecting "SBU priority" or "Solar first" in program 01.	23V (default) 	Setting range is from 22V to 25.5V. Increment of each click is 0.5V.
		Available options when any lithium battery type is selected in Program 05.	
		SOC 10% (default for Lithium) 	If any types of lithium battery is selected in program 05, setting value will change to SOC automatically. Adjustable range is 5% to 95%.
13	Setting voltage point back to battery mode when selecting "SBU priority" or "Solar first" in program 01.	Battery fully charged 	27V (default)
		Setting range is from 24V to 29V. Increment of each click is 0.5V.	
		Available option when any lithium battery type is selected in Program 05.	
		SOC 80% (default for Lithium) 	If any types of lithium battery is selected in program 05, setting value will change to SOC automatically. Adjustable range is 10% to 100%. Increment of each click is 5%.

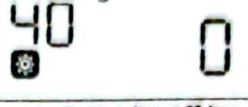
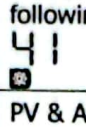
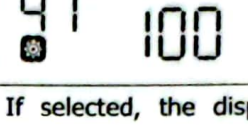
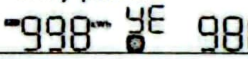
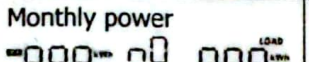
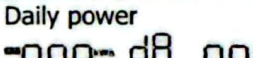
CamScanner

16	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first 	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility (default) 	Solar energy and utility will charge battery at the same time.
		Only Solar 	Solar energy will be the only charger source no matter utility is available or not.
		If this inverter/charger is working in Battery mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.	
18	Alarm control	Alarm on (default) 	Alarm off 
19	Auto return to default display screen	Return to default display screen (default) 	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage /output voltage) after no button is pressed for 1 minute.
		Stay at latest screen 	If selected, the display screen will stay at latest screen user finally switches.
20	Backlight control	Backlight on (default) 	Backlight off 
22	Beeps while primary source is interrupted	Alarm on (default) 	Alarm off 
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable(default) 	Bypass enable 
25	Record Fault code	Record enable(default) 	Record disable 
26	Bulk charging voltage (C.V voltage)	default setting: 28.2V 	
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.0V for 3.2KW model. Increment of each click is 0.1V.	

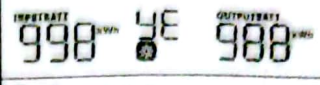
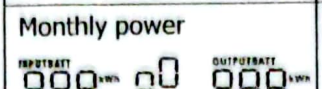
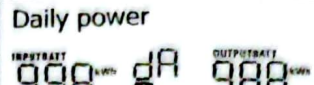
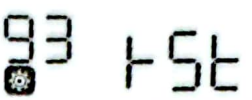
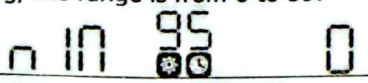
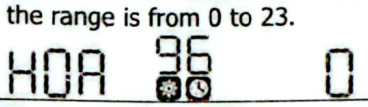
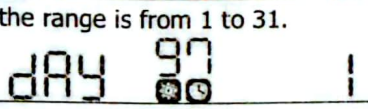
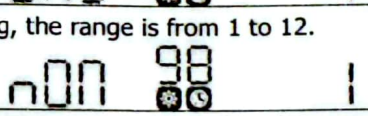
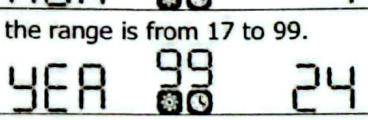
CamScanner

27	Floating charging voltage	default setting: 27.0V 	
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.0V for 3.2KW models. Increment of each click is 0.1V.	
29	Low DC cut-off voltage: • If battery power is only power source available, inverter will shut down. • If PV energy and battery power are available, inverter will charge battery without AC output.	default setting: 21.0V 	
		lithium battery default setting: SOC 5% 	
		If any type of lithium battery is selected in program 05, setting value will change to SOC automatically. Adjustable range is 0% to 90%. Increment of each click is 1%.	
30	Battery equalization	Battery equalization 	Battery equalization disable (default) 
		If "Flooded" or "User-Defined" is selected in program 05, this program can be set up.	
31	Battery equalization voltage	default setting: 29.2V 	
		Setting range is from 25.0V to 31.0V for 3.2KW models. Increment of each click is 0.1V.	
33	Battery equalized time	60min (default) 	Setting range is from 5min to 900min. Increment of each click is 5min.
34	Battery equalized timeout	120min (default) 	Setting range is from 5min to 900 min. Increment of each click is 5 min.
35	Equalization interval	30days (default) 	Setting range is from 0 to 90 days. Increment of each click is 1 day
36	Equalization activated immediately	Enable 	Disable (default) 
		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will shows "E9". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "E9" will not be shown in LCD main page.	
38	Solar energy feeds to the grid (It's requested to enter password)	Solar feeds to the grid disable (default) 	Solar feeds to the grid enable 

CamScanner

<table>
<tr><td rowspan="2">40</td><td rowspan="2">Adjustment parameter for EARTH LED.</td><td colspan="2">If EARTH LED of meter is on, it can be off by adjusting the parameter.
If the unit is in Line mode, this program can be set up. Setting range is from -30 to 30. Increment of each click is 1. The condition of program changed automatically.</td></tr>
<tr><td>If unit is not in Line mode, it will show nothing.
 </td><td>If unit is in Line mode, it will show following
  </td></tr>
<tr><td rowspan="2">41</td><td rowspan="2">Adjustment parameter for REVERSE LED</td><td colspan="2">If REVERSE LED of meter is on, it can be off by adjusting the parameter.
If the unit is in Line mode, this program can be set up. Setting range is from 0 to 300. Increment of each click is 10.</td></tr>
<tr><td>If unit is not in Line mode, it will show following.
  </td><td>If unit is in Line mode, it will show following.
  </td></tr>
<tr><td rowspan="3">90</td><td rowspan="3">PV power & AC output power consumption</td><td>PV & AC output power
 </td><td rowspan="2">If selected, the display screen will show the power by order with total, yearly, monthly, daily as below. The left number is the PV power generation and the right number is the AC output consumption.</td></tr>
<tr><td>Total amount
 </td><td>Yearly power
  </td></tr>
<tr><td>Monthly power
  </td><td>Daily power
  </td></tr>
<tr><td rowspan="3">91</td><td rowspan="3">Grid power & Feed Grid power consumption</td><td>Grid power consumption & Feed-in power
 </td><td rowspan="2">If selected, the display screen will show grid power consumption and feed-in power in order with total, yearly, monthly, daily as below. The left number is the power consumption taking from grid and the right number is the total energy feed-in to the grid.</td></tr>
<tr><td>Total amount
 </td><td>Yearly power
 </td></tr>
<tr><td>Monthly power
 </td><td>Daily power
 </td></tr>
<tr><td>92</td><td>Battery charge power & battery discharge power consumption</td><td>Battery charge & battery discharge power
 </td><td>If selected, the display screen will show the charging and discharging power from battery by order with total, yearly, monthly, daily as below. The left number is the total charging energy for battery and the right number is the discharging power from battery.</td></tr>
</table>

CamScanner

		Total amount 	Yearly power 
		Monthly power 	Daily power 
93	Erase all data log	Not reset (Default) 	reset 
94	Data log recorded interval *The maximum data log number is 6550. If it's over 6550, it will re-write the first log.		Setting range is from 1 to 6 minutes.
95	Time setting - Minute	For minute setting, the range is from 0 to 59. 	
96	Time setting - Hour	For hour setting, the range is from 0 to 23. 	
97	Time setting - Day	For Day setting, the range is from 1 to 31. 	
98	Time setting - Month	For Month setting, the range is from 1 to 12. 	
99	Time setting - Year	For Year setting, the range is from 17 to 99. 	

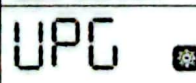
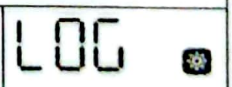
Functional Setting

There are two function settings: USB OTG.

Insert an OTG USB disk into the USB port . Press and hold "↻" button for 3 seconds to enter USB Setup Mode.

These functions including inverter firmware upgrade from the USB disk and data log export to the USB disk.

1. USB Function Setting

Procedure	LCD Screen	
Step 1: Press and hold "↻" button for 3 seconds to enter Function Setting mode. **Step 2:** Press "◀◀", or "▶▶" button to selected "upgrade firmware" or "export data log" function.		

CamScanner

Step 3: Please select setting program by following the procedure.

Program#	Operation Procedure	LCD Screen
UPG : Upgrade firmware	This function is to upgrade inverter firmware. If firmware upgrade is needed, please check with your dealer or installer for detail instructions.	
	Press "↵", if the selected function is ready, LCD will display "rdy".	UPG rdy
	Press "◀◀" to upgrade the DSP, "" or "▶▶" button to upgrade the MCU	dSP mCU
LOG : Export data log	Press "↵", if the selected function is ready, LCD will display "rdy".	LOG rdy
	Press "◀◀" button to select "Yes". It will only display LOG. Press "↻" button to return to main screen. Or press "▶▶" button to select "No" to return to main screen.	YES NO

If no button is pressed for 1 minute, it will automatically return to main screen.

Error message for USB On-The-Go functions:

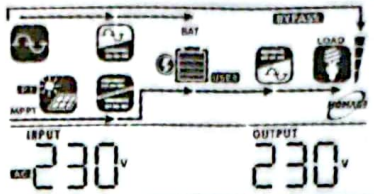
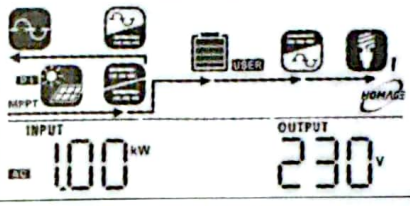
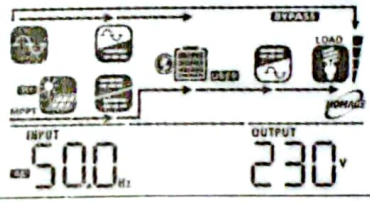
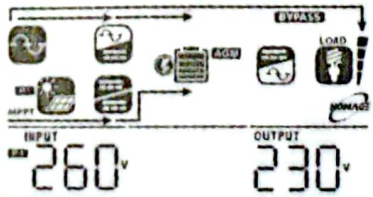
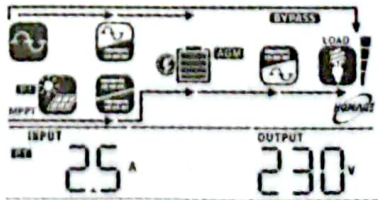
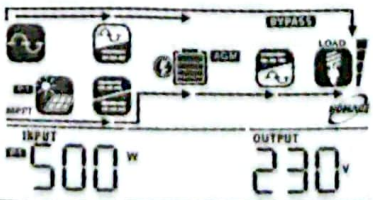
Error Code	Messages
U01	No USB disk is detected.
U02	USB disk is protected from copying.
U03	Document inside the USB disk contains the wrong format.

If any error occurs, error code will only show for 3 seconds. After 3 seconds, it will automatically return to the main screen.

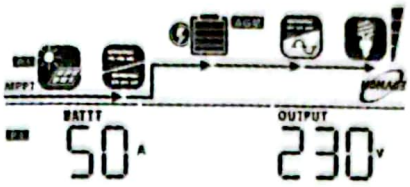
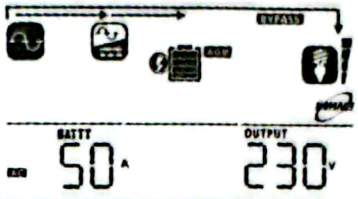
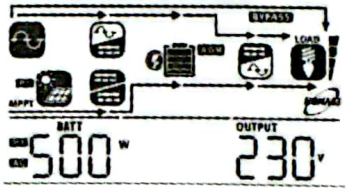
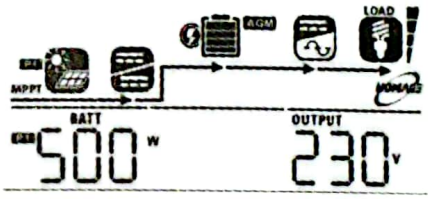
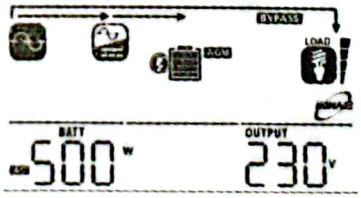
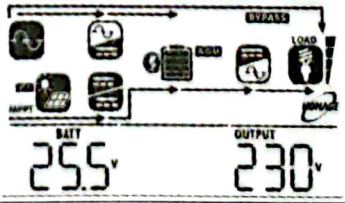
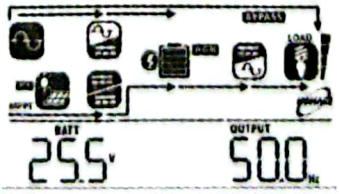
CamScanner

Display Setting

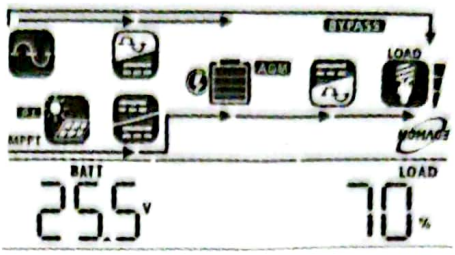
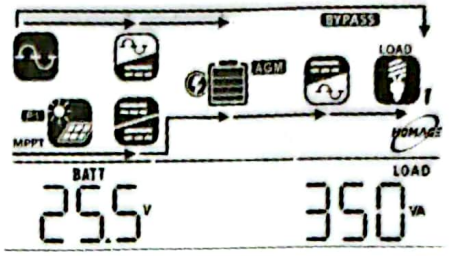
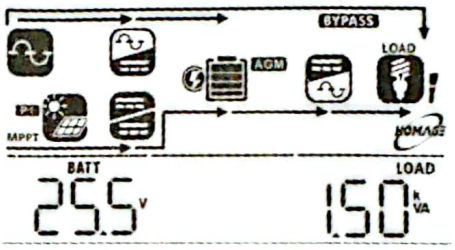
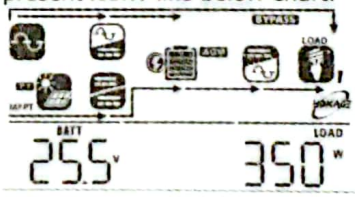
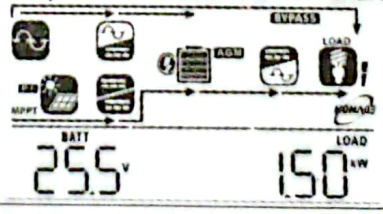
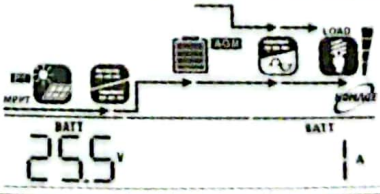
The LCD display information will be switched in turns by pressing "Left" or "Right" key. The selectable information is switched as following order in listed table.

Selectable information	LCD display
Input voltage/Output voltage (Default Display Screen)	Input Voltage=230V, output voltage=230V 
Feed Power/Output voltage (Default Display Screen When Feeding Grid)	Feed Power=1000w, output voltage=230V 
Input frequency	Input frequency=50Hz 
PV voltage	PV voltage=260V 
PV current	PV current = 2.5A 
PV power	PV power = 500W 

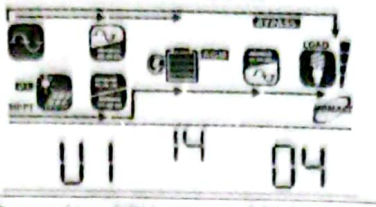
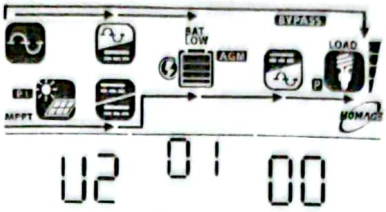
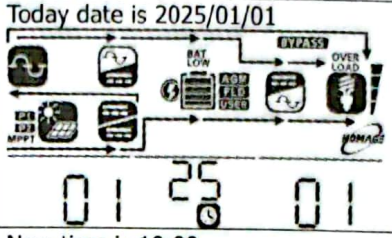
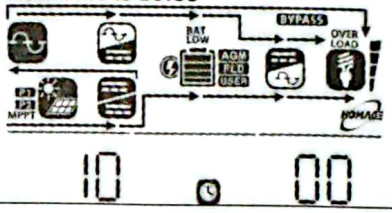
CamScanner

Charging Current	AC and PV charging current=50A PV charging current=50A  AC charging current=50A 
Charging power	AC and PV charging power=500W  PV charging power=500W  AC charging power=500W 
Battery voltage and output voltage	Battery voltage=25.5V, output voltage=230V 
Output frequency	Output frequency=50Hz 

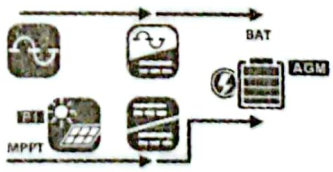
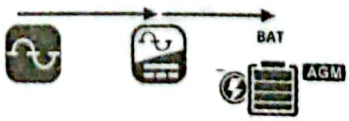
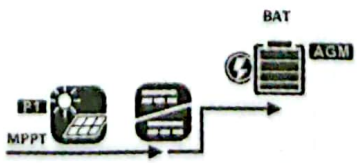
CamScanner

Load percentage	Load percent=70% 
Load in VA	When connected load is lower than 1kVA, load in VA will present xxxVA like below chart.  When load is larger than 1kVA (≧1KVA), load in VA will present x.xkVA like below chart. 
Load in Watt	When load is lower than 1kW, load in W will present xxxW like below chart.  When load is larger than 1kW (≧1KW), load in W will present x.xkW like below chart. 
Battery voltage/DC discharging current	Battery voltage=25.5V, discharging current=1A 

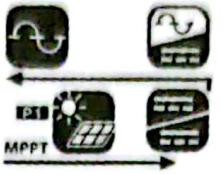
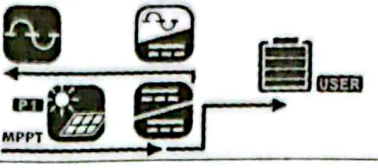
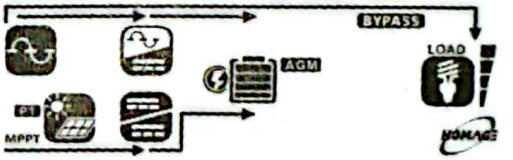
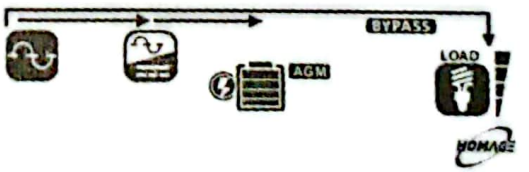
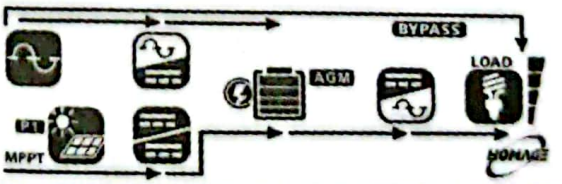
CamScanner

Main CPU version checking	Main CPU version 00014.04 
Secondary CPU version checking	Secondary CPU version 00001.00 
Time checking – Year, Month, Day	Today date is 2025/01/01 
Time checking – Hour, Minute	Now time is 10:00 

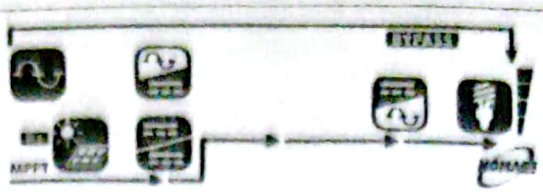
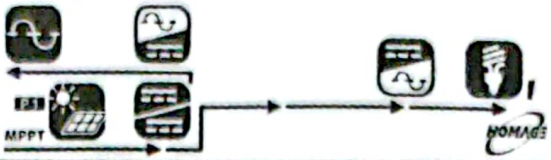
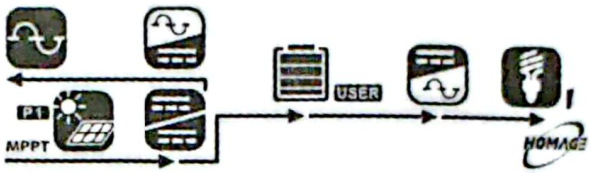
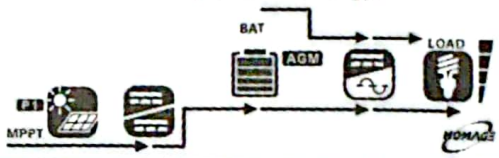
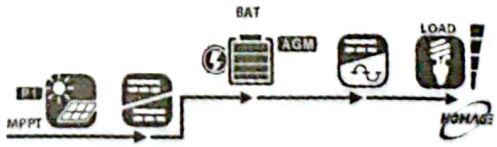
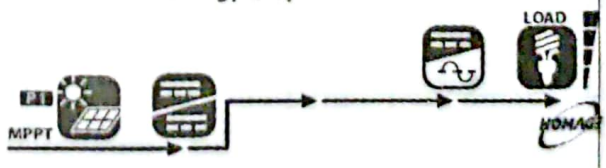
Operating Mode Description

Operation mode	Description	LCD display
Standby mode **Note:** *Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output.	No output is supplied by the unit but it still can charge batteries.	Charging by utility and PV energy. 
		Charging by utility. 
		Charging by PV energy. 
		Battery only.

CamScanner

		Power from PV energy only and feed PV energy to grid when battery is not connected. 
		PV energy charges battery and feeds remaining energy to the grid. 
Fault mode Note: *Fault mode: Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	No charging.	No charging.
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	Charging by utility and PV energy. 
		Charging by utility. 
	The unit will provide output power from the mains. It will also charge the battery at line mode.	If "SUB" is selected as output source priority and solar energy is not sufficient to provide the load, solar energy and the utility will provide the loads and charge the battery at the same time. 
		If "SUB or SBU" is selected as output source priority and battery is not connected, solar energy and the utility will provide the loads.

CamScanner

		 Power from utility.
	The PV will feed power to the mains. It will also charge the battery at line mode.	Power is only generated from PV energy and feeds PV energy to grid when battery is not connected.  PV energy charges battery, provides power to the load and feeds remaining energy to the grid. 
Battery Mode	The unit will provide output power from battery and PV power.	Power from battery and PV energy.  PV energy will supply power to the loads and charge battery at the same time.  Power from battery only. Power from PV energy only. 

CamScanner

Battery Equalization Description

Equalization function is added into charge controller. It reverses the buildup of negative chemical effects like stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that might have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery. Therefore, it's recommended to equalize battery periodically.

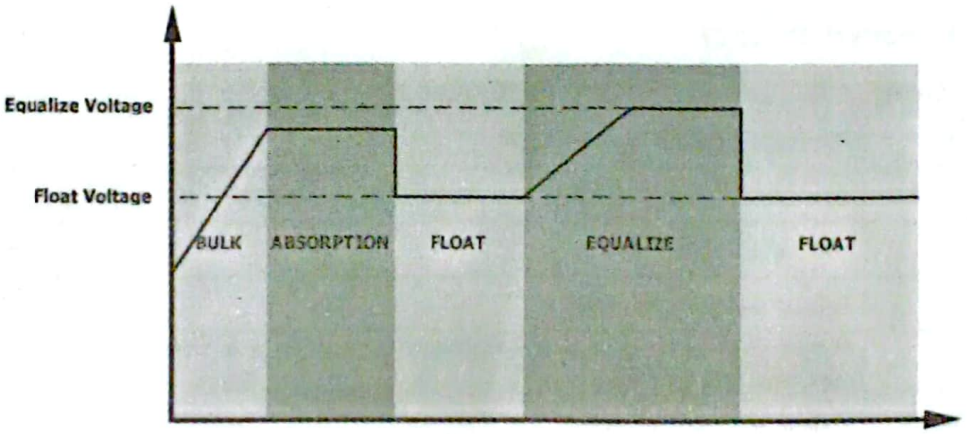
- **How to Apply Equalization Function**

You must enable battery equalization function in monitoring LCD setting program 30 first. Then, you may apply this function in device by either one of following methods:

1. Setting equalization interval in program 35.
2. Active equalization immediately in program 36.

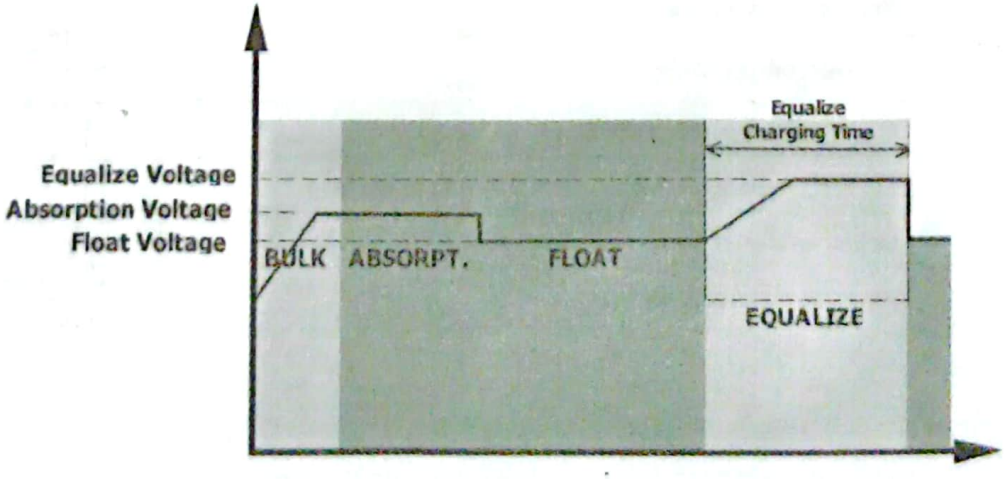
- **When to Equalize**

In float stage, when the setting equalization interval (battery equalization cycle) is arrived, or equalization is active immediately, the controller will start to enter Equalize stage.



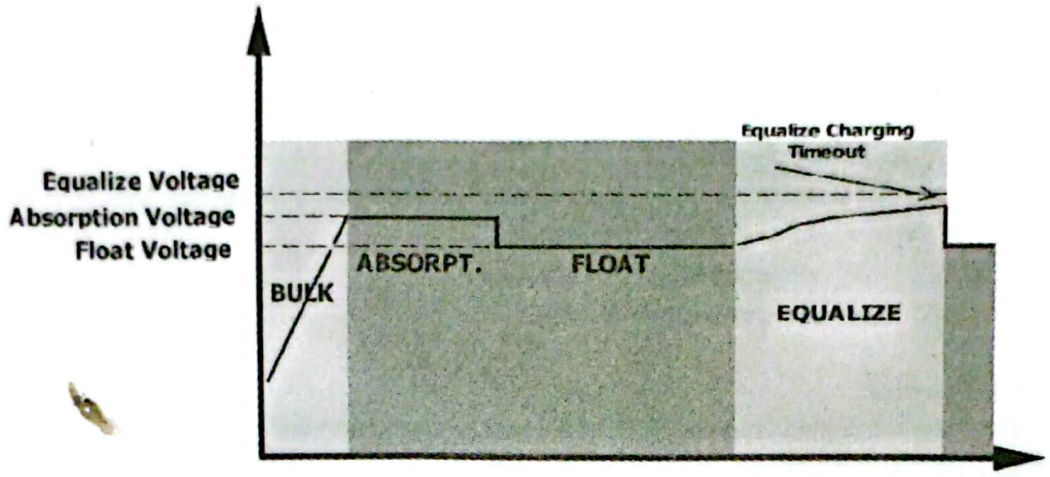
- **Equalize charging time and timeout**

In Equalize stage, the controller will supply power to charge battery as much as possible until battery voltage raises to battery equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the battery equalization voltage. The battery will remain in the Equalize stage until setting battery equalized time is arrived.



CamScanner

However, in Equalize stage, when battery equalized time is expired and battery voltage doesn't rise to battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves battery equalization voltage. If battery voltage is still lower than battery equalization voltage when battery equalized timeout setting is over, the charge controller will stop equalization and return to float stage.

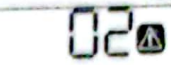
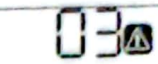
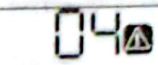
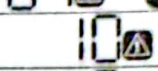
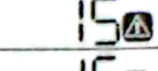
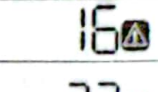
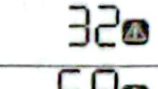
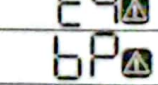


Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	01 ERROR
02	Over temperature or NTC is not connected well.	02 ERROR
03	Battery voltage is too high	03 ERROR
04	Battery voltage is too low	04 ERROR
05	Output short circuited or over temperature is detected by internal converter components.	05 ERROR
06	Output voltage is too high.	06 ERROR
07	Overload time out	07 ERROR
08	Bus voltage is too high	08 ERROR
09	Bus soft start failed	09 ERROR
51	Over current or surge	51 ERROR
52	Bus voltage is too low	52 ERROR
53	Inverter soft start failed	53 ERROR
55	Over DC voltage in AC output	55 ERROR
57	Current sensor failed	57 ERROR
58	Output voltage is too low	58 ERROR
59	PV voltage is over limitation	59 ERROR

CamScanner

Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	
02	Over temperature	None	
03	Battery is over-charged	Beep once every second	
04	Low battery	Beep once every second	
07	Overload	Beep once every 0.5 second	
10	Output power derating	Beep twice every 3 seconds	
15	PV energy is low.	Beep twice every 3 seconds	
16	High AC input (>280VAC) during BUS soft start	None	
32	Communication lost	None	
E9	Battery equalization	None	
bP	Battery is not connected	None	

CamScanner

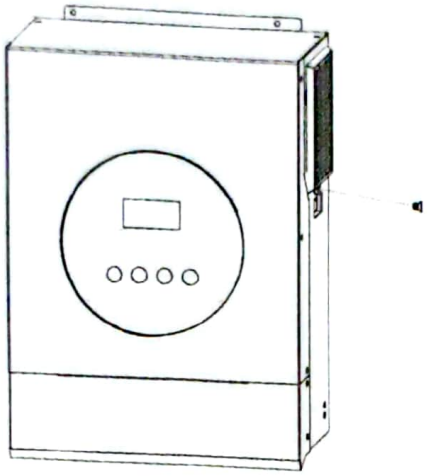
CLEARANCE AND MAINTENANCE FOR ANTI-DUST KIT

Overview

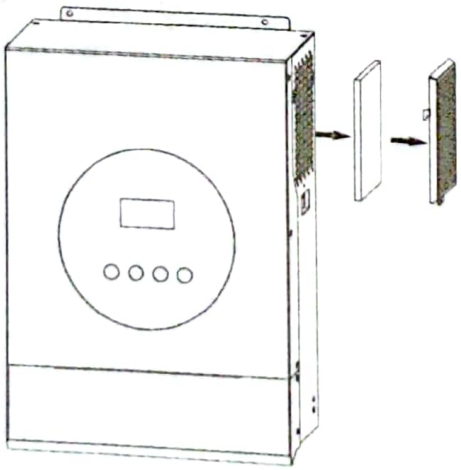
Every inverter is already installed with anti-dusk kit from factory. This kit will keep dusk from your inverter and increases product reliability in harsh environment.

Clearance and Maintenance

Step 1: Please loosen the screw on the side of the inverter.



Step 2: Then, dustproof case can be removed and take out air filter foam as shown in below chart.



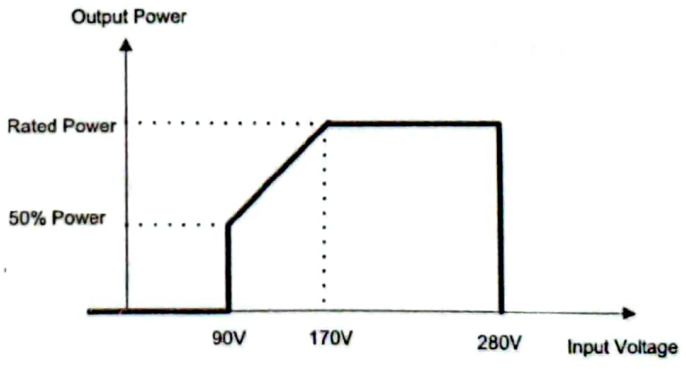
Step 3: Clean air filter foam and dustproof case. After clearance, re-assemble the dust-kit back to the inverter.

NOTICE: The anti-dust kit should be cleaned from dust every one month.

CamScanner

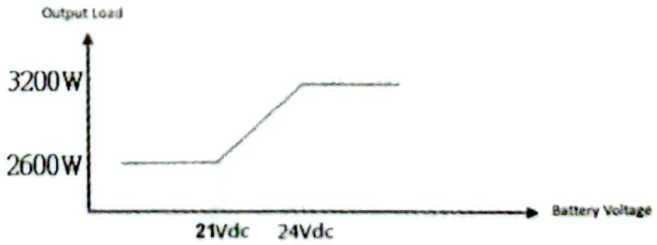
SPECIFICATIONS

Table 1 Line Mode Specifications

INVERTER MODEL	HAS-3218SCC
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)
Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)
High Loss Voltage	280Vac±7V
High Loss Return Voltage	270Vac±7V
Max AC Input Voltage	300Vac
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Low Loss Frequency	40±1Hz
Low Loss Return Frequency	42±1Hz
High Loss Frequency	65±1Hz
High Loss Return Frequency	63±1Hz
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)
Output power derating: When AC input voltage drops to 170V, the output power will be derated.	

CamScanner

Table 2 Inverter Mode Specifications

INVERTER MODEL	HAS-3218SCC
Rated Output Power	3.2KVA/3.2KW
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230Vac±5%
Output Frequency	50Hz
Peak Efficiency	93%
Overload Protection	5s@≥130% load; 10s@105%~130% load
Surge Capacity	2* rated power for 5 seconds
Nominal DC Input Voltage	24Vdc
Cold Start Voltage	23.0Vdc
Low DC Warning Voltage @ load < 50% @ load ≥ 50%	 23.0Vdc 22.0Vdc
Low DC Warning Return Voltage @ load < 50% @ load ≥ 50%	 23.5Vdc 23.0Vdc
Low DC Cut-off Voltage @ load < 50% @ load ≥ 50%	 21.5Vdc 21.0Vdc
High DC Recovery Voltage	31Vdc
High DC Cut-off Voltage	32Vdc
No Load Power Consumption	<35W
Power Limitation	

CamScanner

Table 3 Charge Mode Specifications

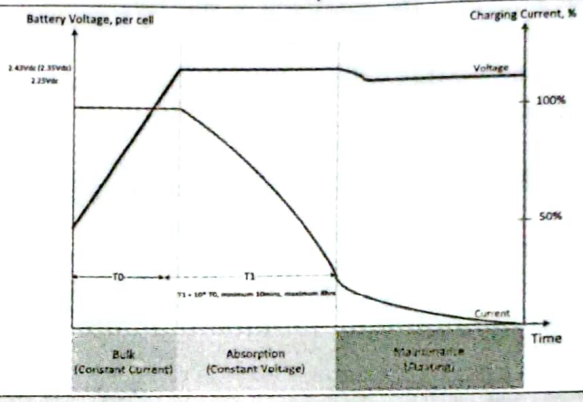
Utility Charging Mode		
INVERTER MODEL		**HAS-3218SCC**
Charging Algorithm		3-Step
AC Charging Current (Max)		80Amp (@$V_{I/P}$=230Vac)
Bulk Charging Voltage	**Flooded Battery**	29.2
	AGM / Gel Battery	28.2
Floating Charging Voltage		27Vdc
Charging Algorithm		3-Step
Charging Curve		
MPPT Solar Charging Mode		
INVERTER MODEL		**HAS-3218SCC**
Max. PV Array Power		5000W
Nominal PV Voltage		240Vdc
Start-up Voltage		70Vdc +/- 10Vdc
PV Array MPPT Voltage Range		60~450Vdc
Max. PV Array Open Circuit Voltage		500Vdc
Max. Input Current		18Amp
Max. PV charging Current		120Amp
Max Charging Current (AC charger plus solar charger)		120Amp

Table 4 General Specifications

INVERTER MODEL	**HAS-3218SCC**
Safety Certification	CE
Operating Temperature Range	-10°C to 50°C
Storage temperature	-15°C~ 60°C
Humidity	5% to 95% Relative Humidity (Non-condensing)
Dimension (D*W*H), mm	114 x 298.6 x 411.6
Net Weight, kg	8.1

CamScanner

TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Internal fuse tripped.	1. Contact repair center for replacing the fuse. 2. Re-charge battery. 3. Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS→Appliance)
	Green LED is flashing.	Set "Solar First" as the priority of output source.	Change output source priority to Utility first.
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 105% and time is up.	Reduce the connected load by switching off some equipment.
		If PV input voltage is higher than specification, the output power will be derated. At this time, if connected loads is higher than derated output power, it will cause overload.	Reduce the number of PV modules in series or the connected load.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
		Temperature of internal converter component is over 120°C.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02	Internal temperature of inverter component is over 100°C.	
	Fault code 03	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	
	Fault code 59	PV input voltage is beyond the specification.	Reduce the number of PV modules in series.

CamScanner

Appendix I: BMS Communication Installation

1. Introduction

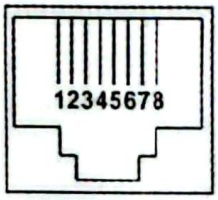
If connecting to lithium battery, it is recommended to purchase a custom-made RJ45 communication cable. Please check with your dealer or integrator for details.

This custom-made RJ45 communication cable delivers information and signal between lithium battery and the inverter. These information are listed below:

- Re-configure charging voltage, charging current and battery discharge cut-off voltage according to the lithium battery parameters.
- Have the inverter start or stop charging according to the status of lithium battery.

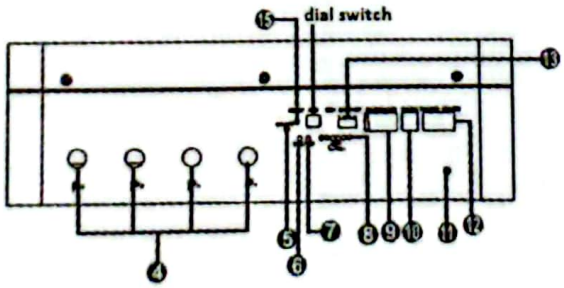
2. Pin Assignment for BMS Communication Port

	Definition
PIN 1	RS232TX
PIN 2	RS232RX
PIN 3	RS485B
PIN 4	NC
PIN 5	RS485A
PIN 6	CANH
PIN 7	CANL
PIN 8	GND



3. Lithium Battery Communication Configuration

LIO II-2410E

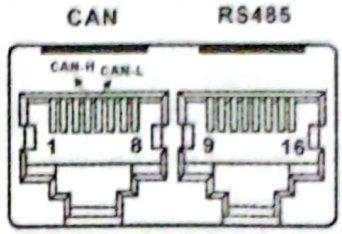


1. ADD: It indicates the unique ADD code for each battery module. It's required to assign a unique ID to each battery module for parallel operation. Maximum 15 battery modules can be operated in parallel. The explanation of its dial switch as shown in below table.

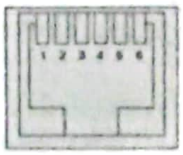
Address Code				ADD	PACK Definition	Address Code				ADD	PACK Definition
1	2	3	4			1	2	3	4		
ON	OFF	OFF	OFF	1	PACK1	ON	OFF	OFF	ON	9	PACK9
OFF	ON	OFF	OFF	2	PACK2	OFF	ON	OFF	ON	10	PACK10
ON	ON	OFF	OFF	3	PACK3	ON	ON	OFF	ON	11	PACK11
OFF	OFF	ON	OFF	4	PACK4	OFF	OFF	ON	ON	12	PACK12
ON	OFF	ON	OFF	5	PACK5	ON	OFF	ON	ON	13	PACK13
OFF	ON	ON	OFF	6	PACK6	OFF	ON	ON	ON	14	PACK14
ON	ON	ON	OFF	7	PACK7	ON	ON	ON	ON	15	PACK15
OFF	OFF	OFF	ON	8	PACK8						

CamScanner

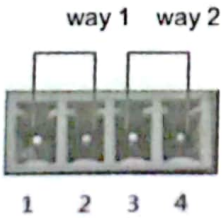
2. CAN & RS485: CAN Communication Terminal:(RJ45port) follow CAN protocol, for output battery information.

CAN Using 8P8C vertical RJ45 socket		RS485 Using 8P8C vertical RJ45 socket		
RJ45 Pin	Definition description	RJ45 Pin	Definition description	
1, 3, 6, 7, 8	NC	9, 16	RS485-B1	
4	CAN-H	10, 15	RS485-A1	
5	CAN-L	11, 14	GND	
2	GND	12, 13	NC	

3. RS232 port: (RJ11 port) follow RS232 protocol, for manufacturer or professional engineer to debug or service.

 RS232 port	RS232 Use 6P6C vertical R11 socket	
	RJ11 pin	Definition description
	2	NC
	3	TX
	4	RX
	5	GND

4. Dry contact: Dry Contact Terminal: provided 2 ways input and 2 ways output dry contact signal.



CamScanner

Appendix II: The Wi-Fi Operation Guide

1. Introduction

Wi-Fi module can enable wireless communication between solar inverters and the monitoring platform. Users can remotely monitor and control their inverters when they combine the Wi-Fi module with Energy-Mate APP. The App uses the Wi-Fi chip to provide remote monitoring data services, which is beneficial for the daily data monitoring of the inverter, querying the real-time data in the device, sending commands from the device, and operating the device remotely. The app is available for both iOS and Android.

2. Energy-Mate App

2-1. Download and install APP

Please find "Energy-Mate" app from Apple® store or Google® Play Store. Install this app in your mobile phone.

Or scan the following QR code with your smart phone and download Energy-Mate App.

(Android system)

(iOS system)

2-2. Initial Setup

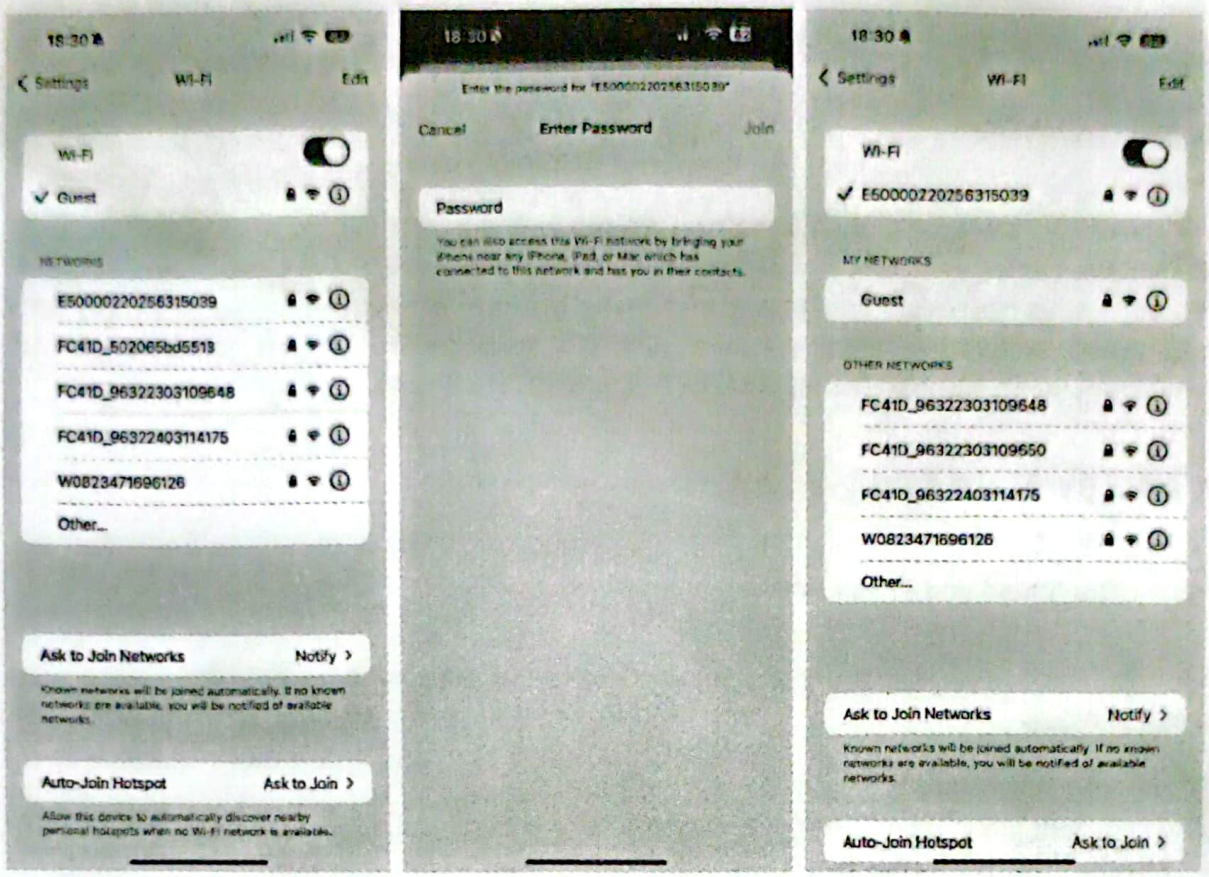
You can choose local Wi-Fi or Bluetooth to configure the Wi-Fi module network through Energy-mate APP.

Local Wi-Fi Configuration

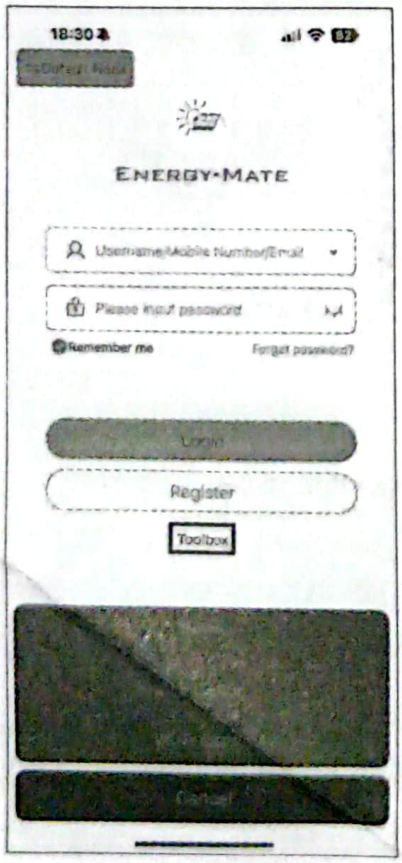
If you have configured the network through Bluetooth, please skip this section.

- Turn on the unit.
- Open the Wi-Fi settings from your smart phone.
- Connect your smart phone to the Wi-Fi module. The Wi-Fi module PN number is 18 digits.
- Default password for the Wi-Fi module is: 12345678.

CamScanner

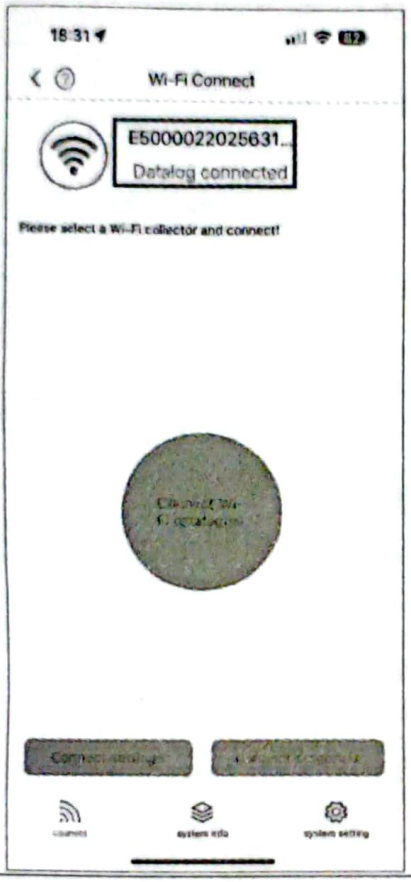


- Once the Wi-Fi connection is successful, click the Energy-Mate APP installed in the phone to enter the login page. Then, click the "Toolbox" and choose "Wi-Fi Config" to enter the Wi-Fi configuration page.



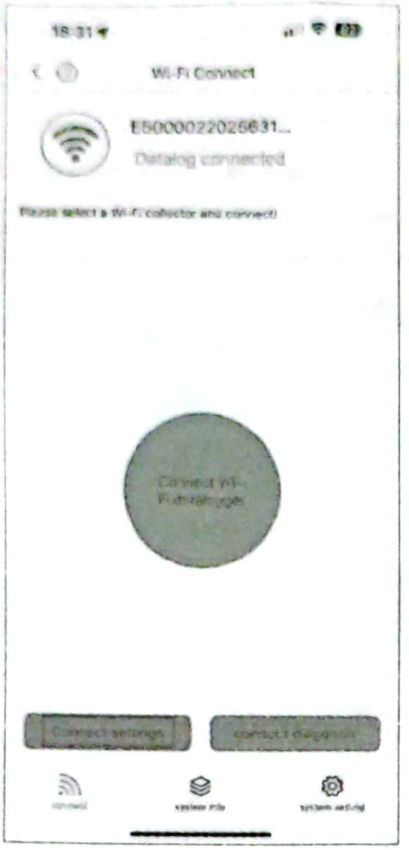
CamScanner

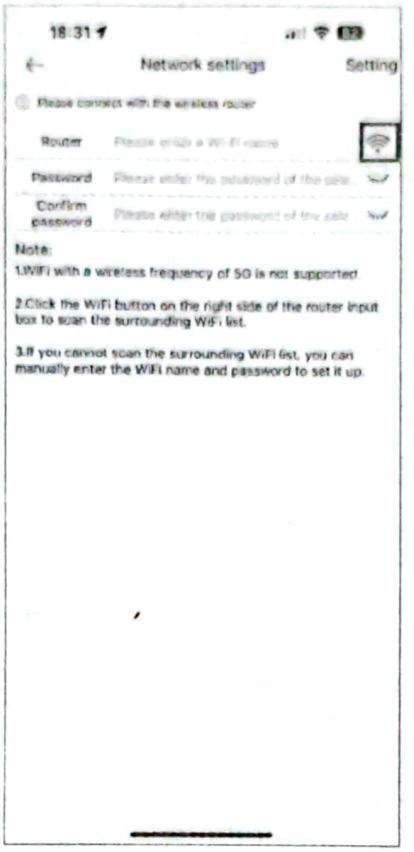
- After entering the Wi-Fi configuration page, please note that the connected Wi-Fi name **must** be the **same as your Wi-Fi module PN number**, and the status **must** be **connected**. If not, please return to the login page, connect your smart phone to the Wi-Fi module, and re-enter the Wi-Fi configuration page.

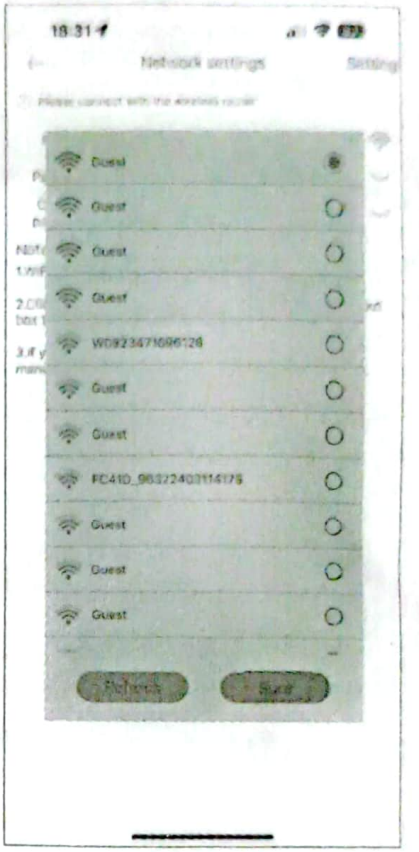
The Wi-Fi module connection is **successfully**	The Wi-Fi module connection **failed**
You can proceed to the next step to configure the network.	Please return to the login page, connect your smart phone to the Wi-Fi module, and re-enter the Wi-Fi configuration page.
	

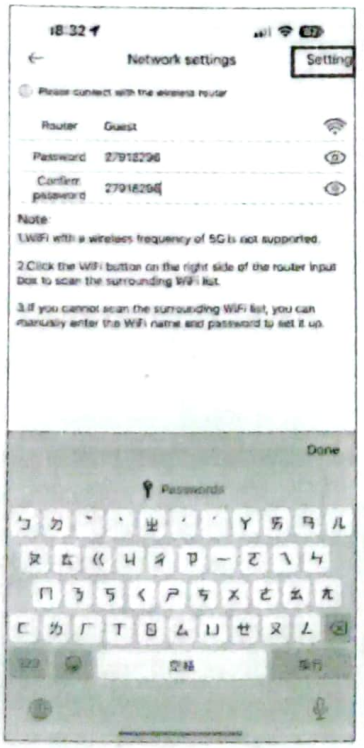
CamScanner

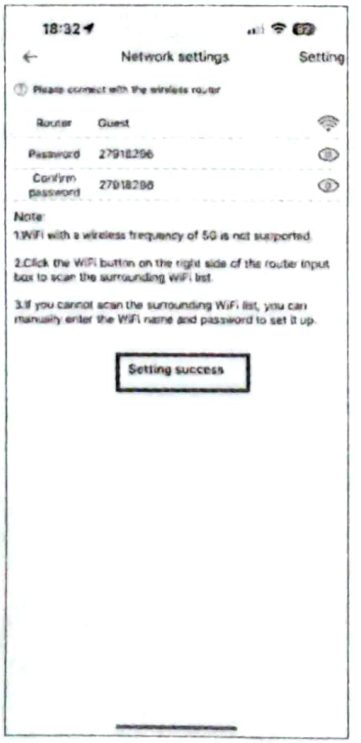
- Click "Connect settings" to manually enter the router name or click [redacted] to choose the router name. Then, enter the router password and click the "Setting" to complete the setting.
  The Wi-Fi module only could connect the router at **2.4GHz**.




Network settings
Setting
Router
Password
Confirm password
Note:
1.WiFi with a wireless frequency of 5G is not supported.
2.Click the WiFi button on the right side of the router input box to scan the surrounding WiFi list.
3.If you cannot scan the surrounding WiFi list, you can manually enter the WiFi name and password to set it up.

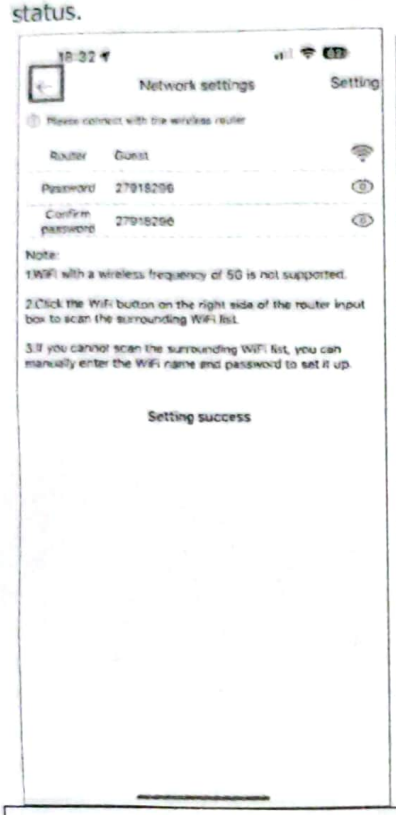


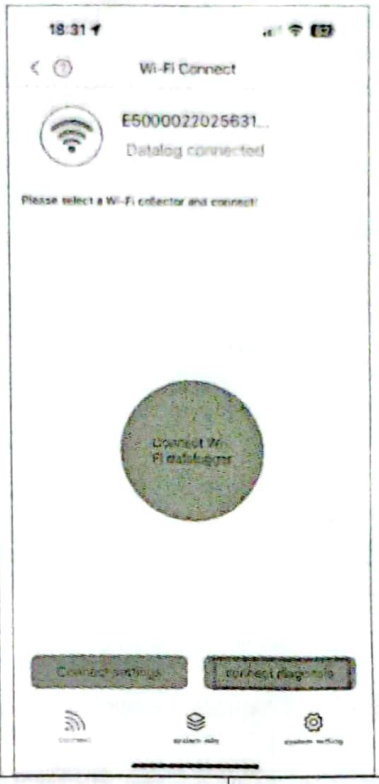

Network settings
Setting
Router Guest
Password 27918296
Confirm password 27918296
Note:
1.WiFi with a wireless frequency of 5G is not supported.
2.Click the WiFi button on the right side of the router input box to scan the surrounding WiFi list.
3.If you cannot scan the surrounding WiFi list, you can manually enter the WiFi name and password to set it up.
Done

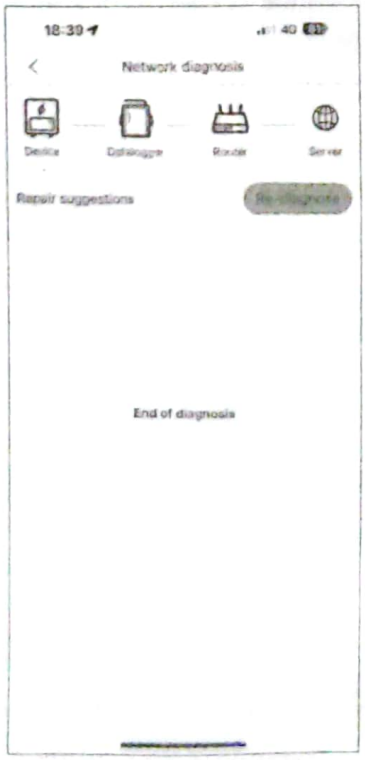
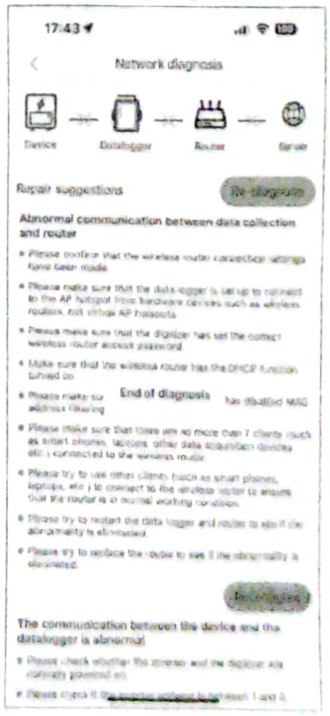

Network settings
Setting
Router Guest
Password 27918296
Confirm password 27918296
Note:
1.WiFi with a wireless frequency of 5G is not supported.
2.Click the WiFi button on the right side of the router input box to scan the surrounding WiFi list.
3.If you cannot scan the surrounding WiFi list, you can manually enter the WiFi name and password to set it up.
Setting success

CamScanner

- Click to return to the Wi-Fi configuration page. Click "Connect diagnosis" to check the connection status.

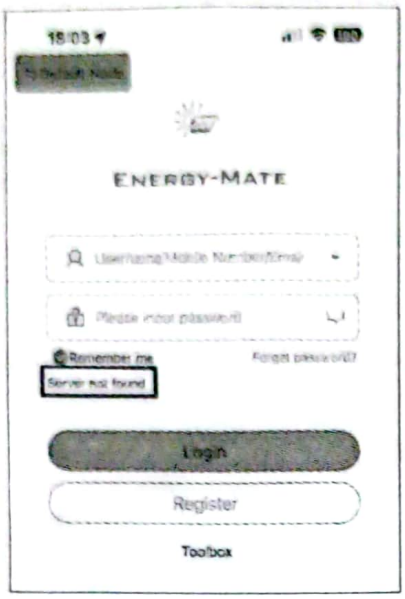

Network settings
Setting
Router
Guest
Password
27918296
Confirm password
27918296
Note:
1.WiFi with a wireless frequency of 5G is not supported.
2.Click the WiFi button on the right side of the router input box to scan the surrounding WiFi list.
3.If you cannot scan the surrounding WiFi list, you can manually enter the WiFi name and password to set it up.
Setting success



The configuration is **successfully**	The configuration **failed**
Green lines between device, datalogger, router, and server. 	Red crosses between device, datalogger, router, and server. Please refer to APP instructions to re-configure. 

Network diagnosis
Repair suggestions
Abnormal communication between data collection and router
The communication between the device and the datalogger is abnormal

- After Wi-Fi configuration, please **forget** the Wi-Fi module of the Wi-Fi connection on the smartphone to avoid automatic connection and unable to access the network. The login page will prompt "Server not found".



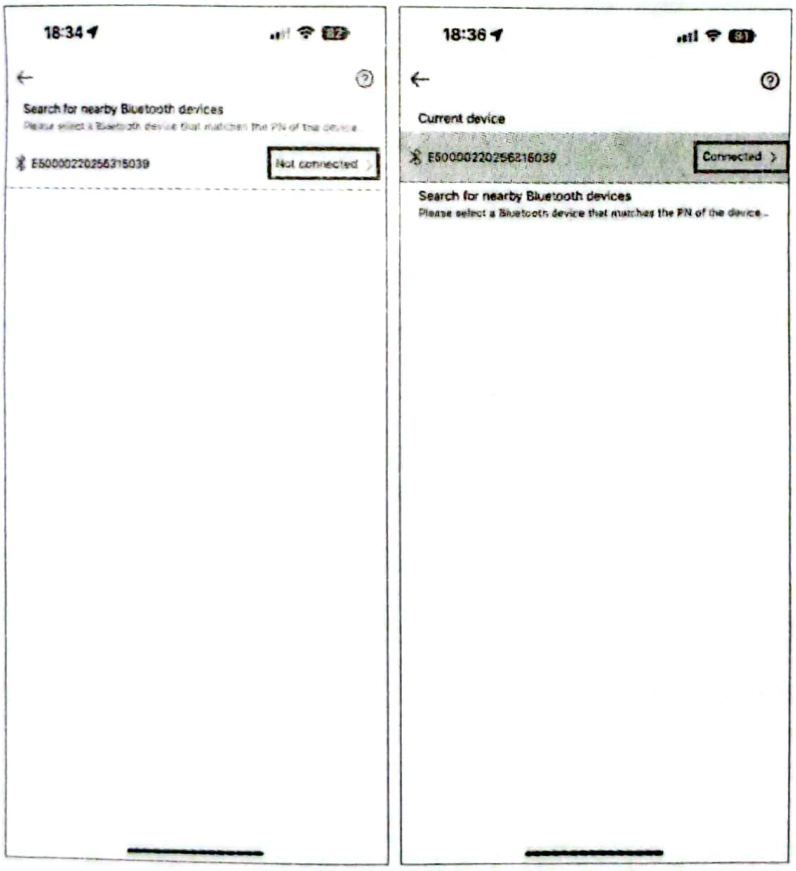
Bluetooth Configuration

If you have configured the network through Wi-Fi, please skip this section.

- Turn on the unit.
- Open the Bluetooth from your smart phone.
- Click the Energy-Mate APP installed in the phone to enter the login page. Then, click the "Toolbox" and choose "BLE Config" to enter the Bluetooth configuration page.

CamScanner

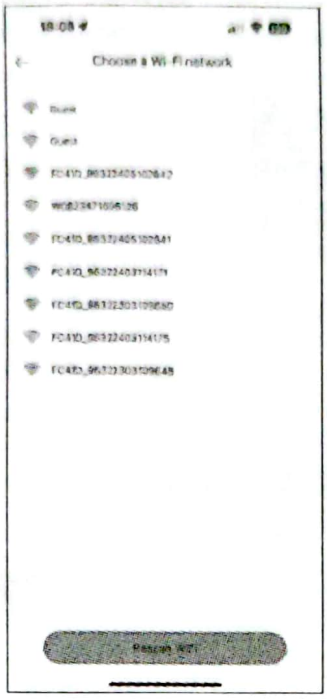
- Connect your smart phone to the Wi-Fi module through Bluetooth.

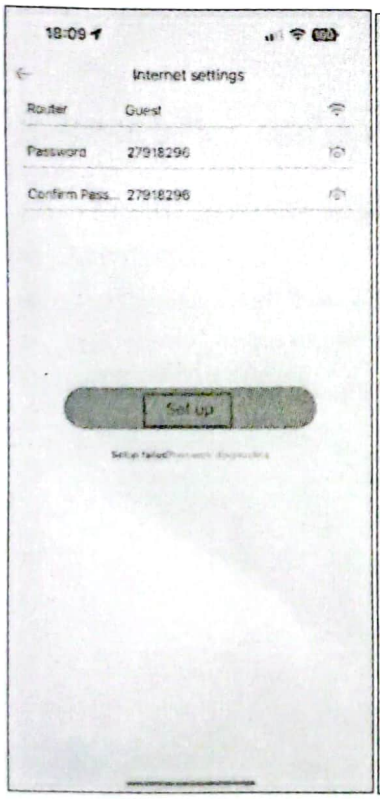

Search for nearby Bluetooth devices
Not connected
Current device
Connected
Search for nearby Bluetooth devices
Please select a Bluetooth device that matches the PN of the device.

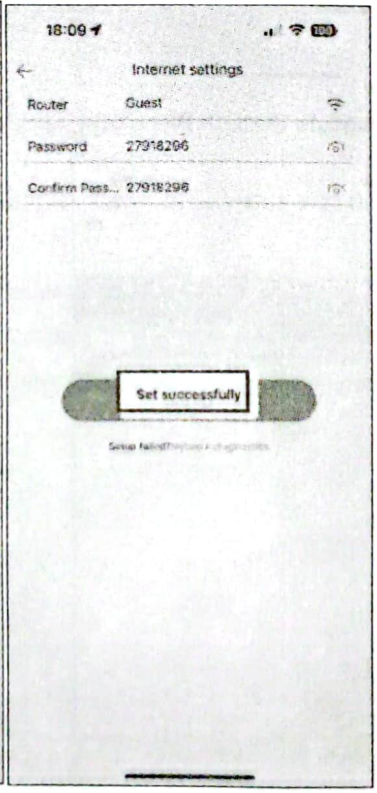
- Manually enter the router name or click to choose the router name, enter the router password, and then click the "Setting" to complete the setting.

CamScanner

The Wi-Fi module only could connect the router at **2.4GHz**.



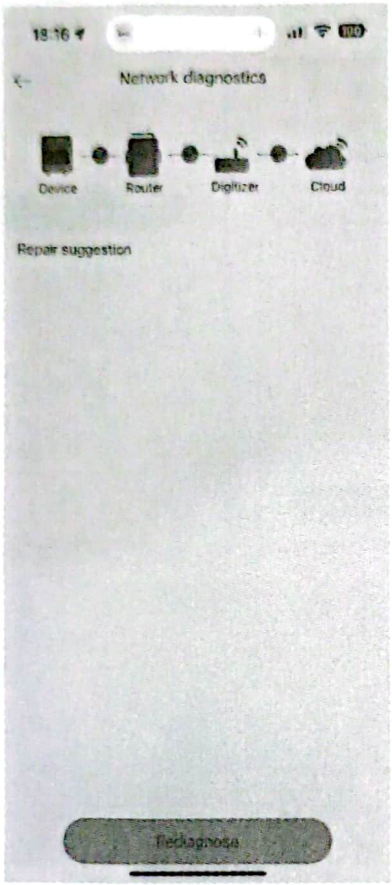
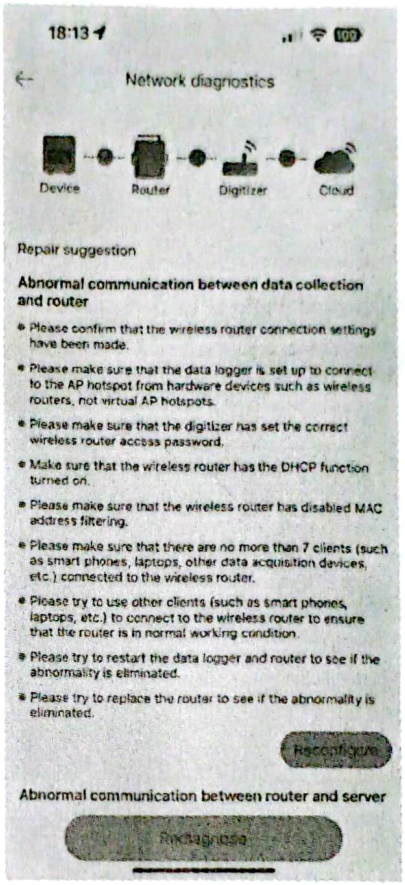




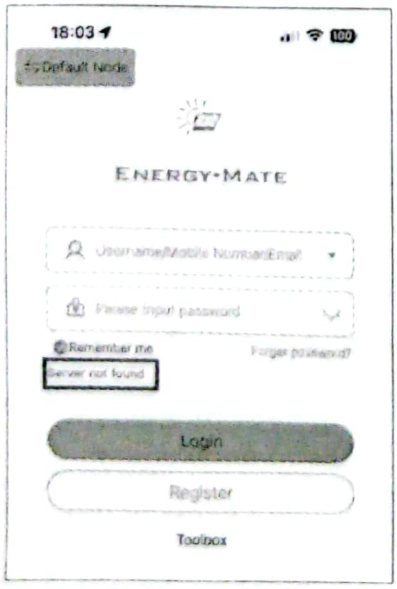
- Click "Network diagnosis" to check the connection status.

CamScanner

18:37
Network configuration is successful
Network configuration is successful

The configuration is **successfully**	The configuration **failed**
Green lines between device, data logger, router, and server. 	Red crosses between device, data logger, router, and server. Please refer to APP instructions to reconfigure. 

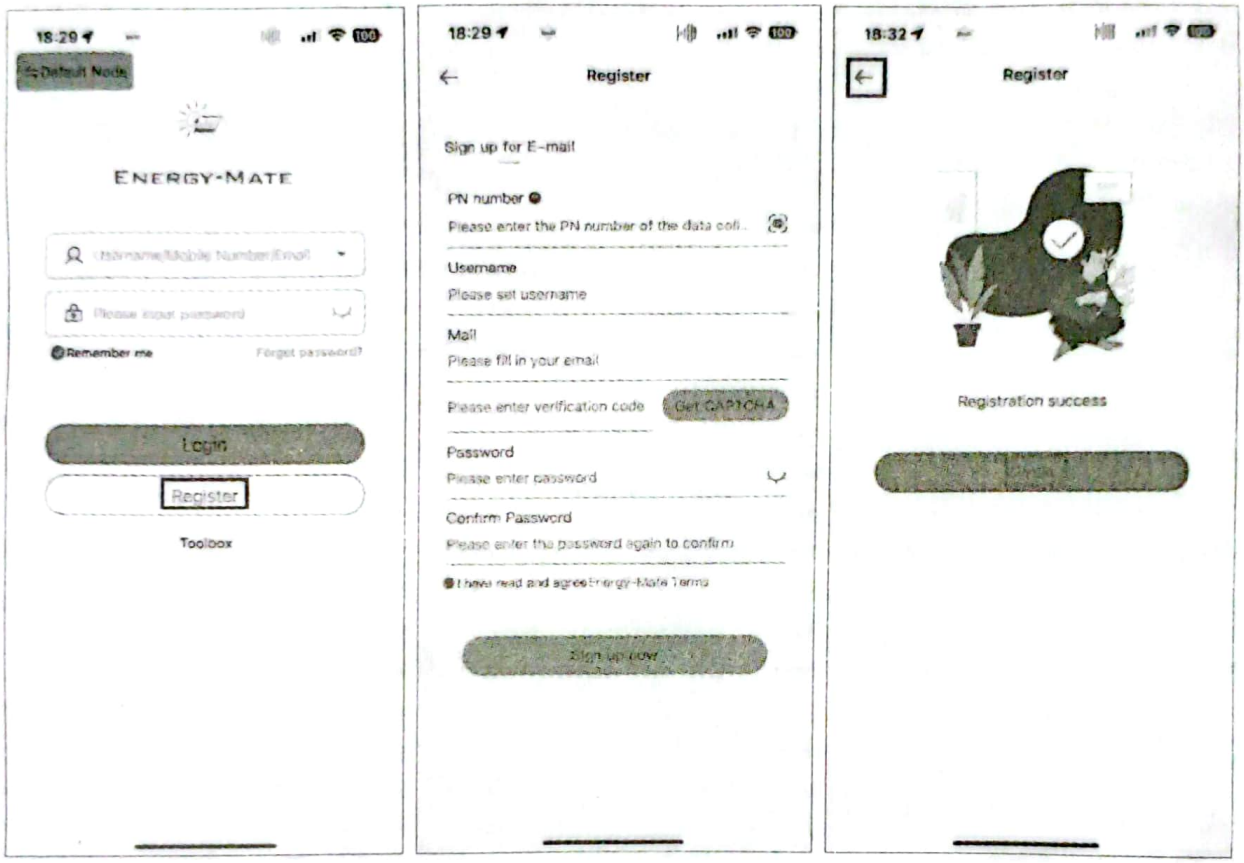
- After Bluetooth configuration, please **disconnect** the Wi-Fi module of the Bluetooth connection on the smartphone to avoid automatic connection and unable to access the network. The login page will prompt "Server not found".



CamScanner

2-3 Registration and login

- Connect your smart phone to the router.
- Registration at first time.
- Click the "Register" to enter registration page and fill in the information. Once registration is complete, click "Sign in" or click ← to return to the home page. Then, enter the registered username and password to log in.

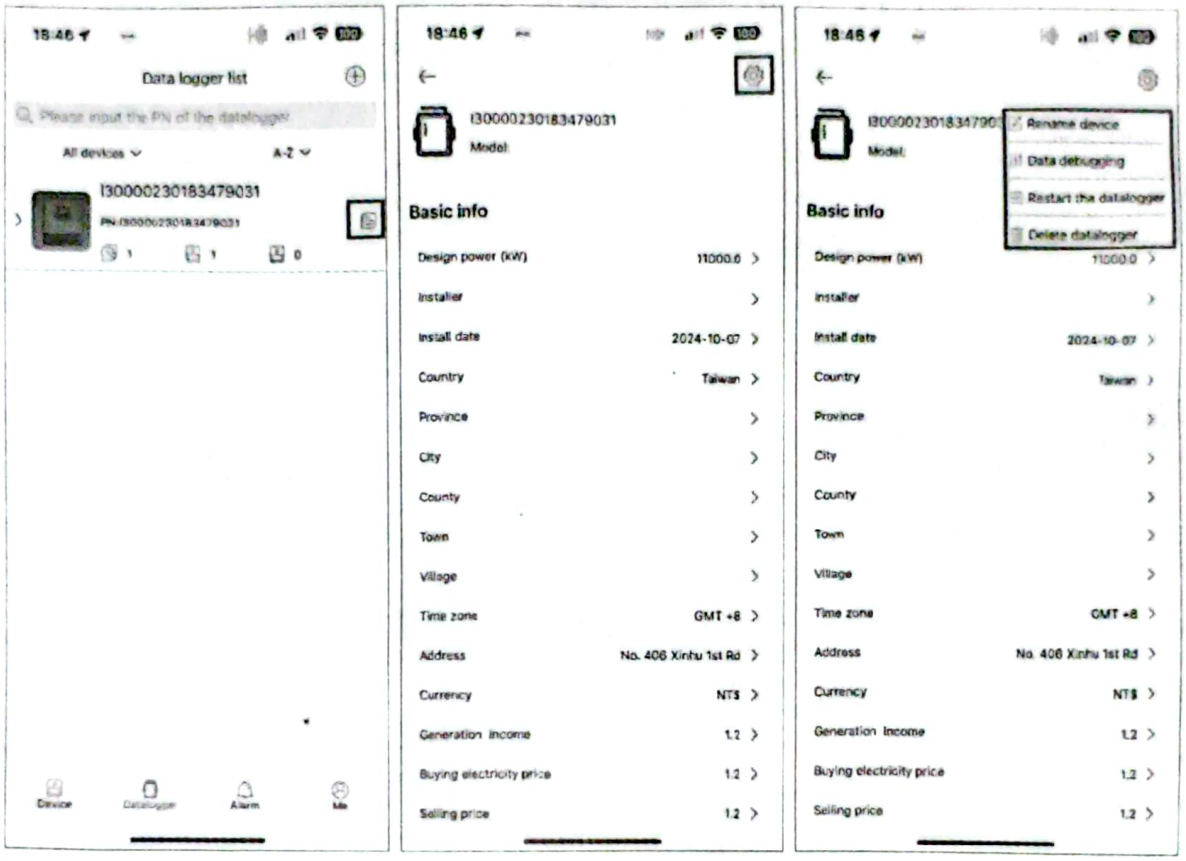


2-4 Datalogger

- After login, the default Home page will appear.
- Choose Datalogger page to see the Wi-Fi module list.
  - Gray icon means Wi-Fi module is offline. Please refer to 2-2 Initial Setup to choose local Wi-Fi or Bluetooth configure Wi-Fi module network.
  - Green icon means Wi-Fi module is online.

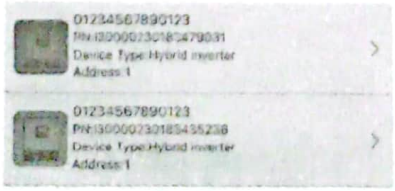
CamScanner

- Click to see the Wi-Fi module information.
- Click to rename device, data debugging, restart the datalogger, and delete datalogger.
  - Rename device: rename the Wi-Fi module name.
  - Data debugging: send RS232 commands to the inverter in hexadecimal format.
  - Restart the datalogger: restart the Wi-Fi module.
  - Delete datalogger: delete the Wi-Fi module. The inverter information in the device page will **also be deleted**. Once deleted, you **can** add datalogger under another account.



2-5 Device

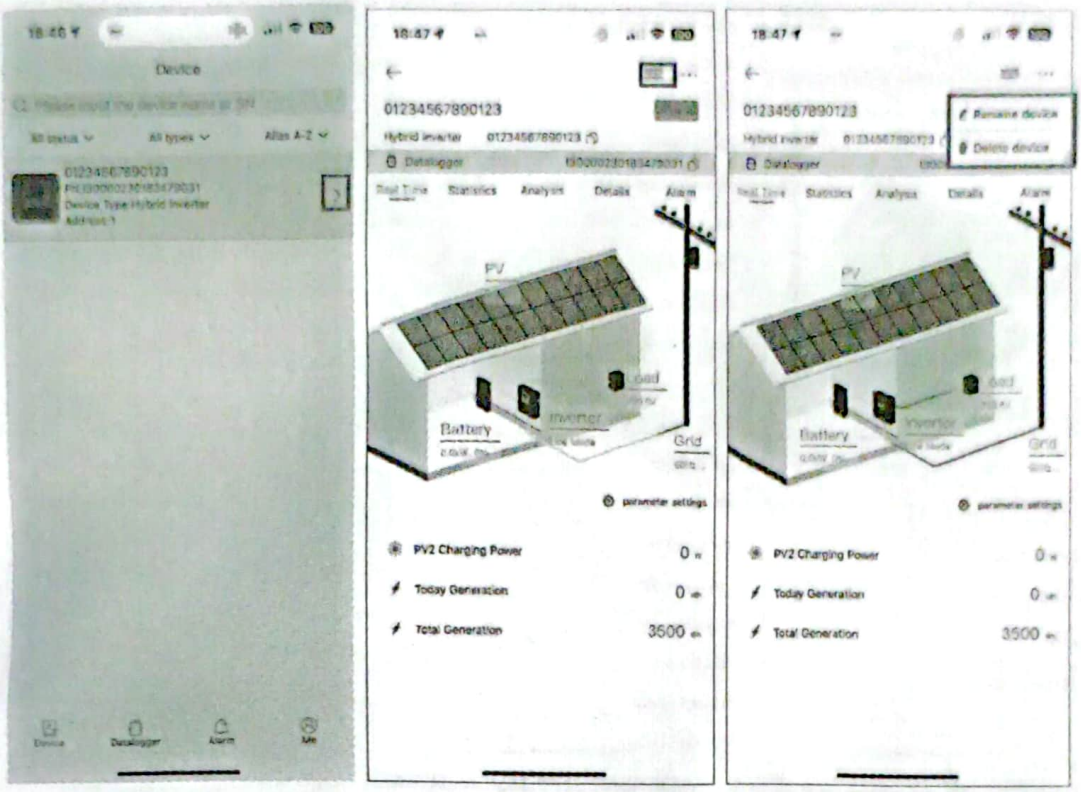
- Choose Device page to see the inverter list.
  - Gray icon means inverter is offline.
  - Green icon means inverter is online and no warnings and faults.
  - Yellow icon means inverter is online and has a warning.
  - Red icon means inverter is online and has a fault.



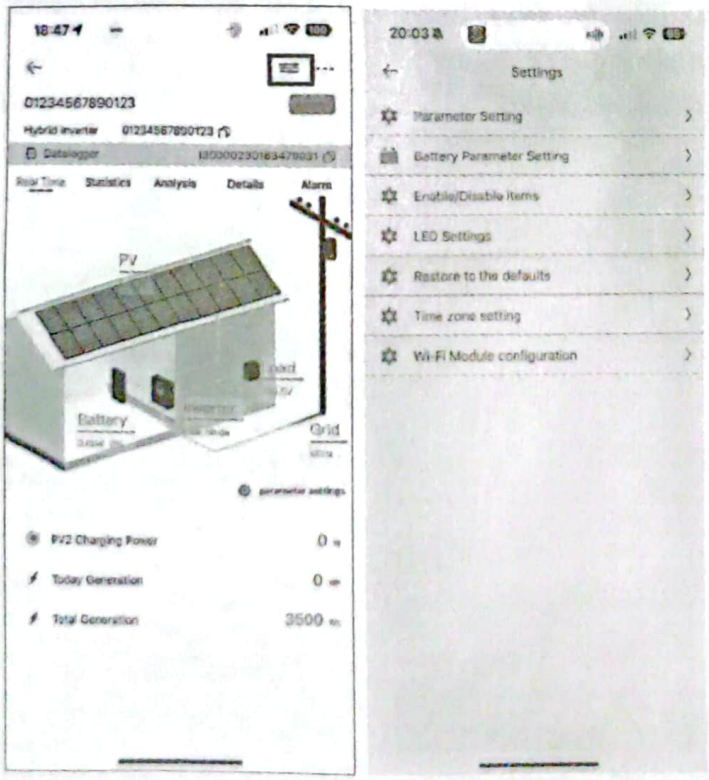
- Click to see the inverter information.
- Click to rename device and delete device.
  - Rename device: rename the inverter name.

CamScanner

- Delete device: delete the inverter. The Wi-Fi module information in the datalogger page will **not be deleted**. Even if deleted, you **cannot** add Wi-Fi module under another account.



- Click to enter setting parameters page. The setting items on the parameter page will be different based on different models.



- Click "Real Time" to see the inverter real-time data. Click "parameter settings" to choose data you want to see on the real time page. You can choose up to **10 data**.

CamScanner

- Click "Statistics" to see the inverter solar power per hour, day, month and year.

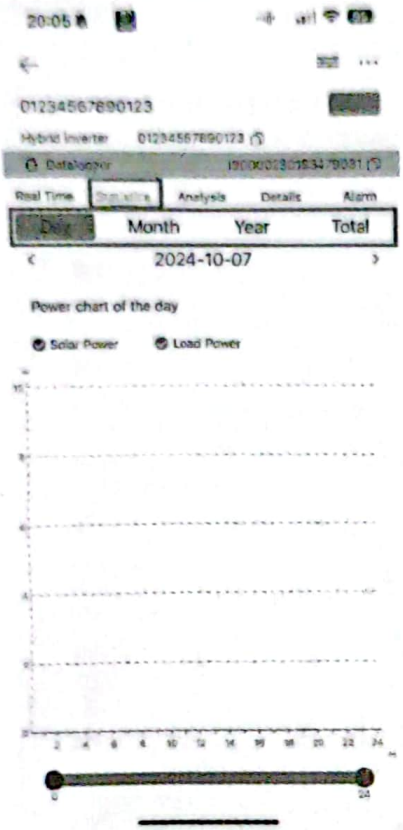
  Day: Click the button to query the hourly power generation data of the current day.

  Month: Click the button to query the daily power generation data of the current month.

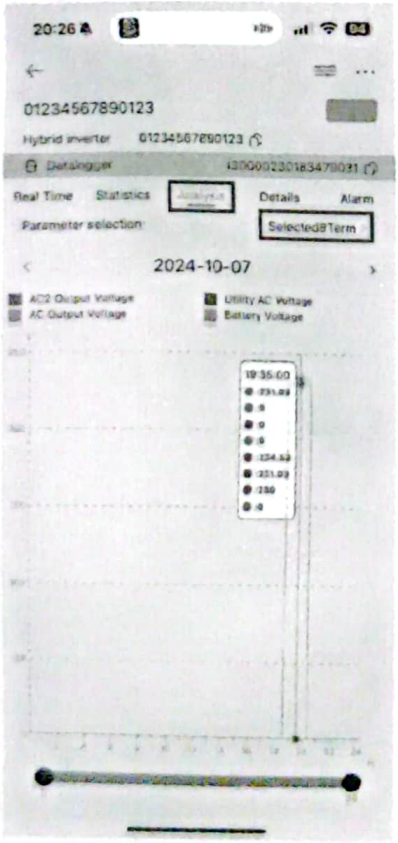
  Year: Click the button to query the monthly power generation data of the current year.

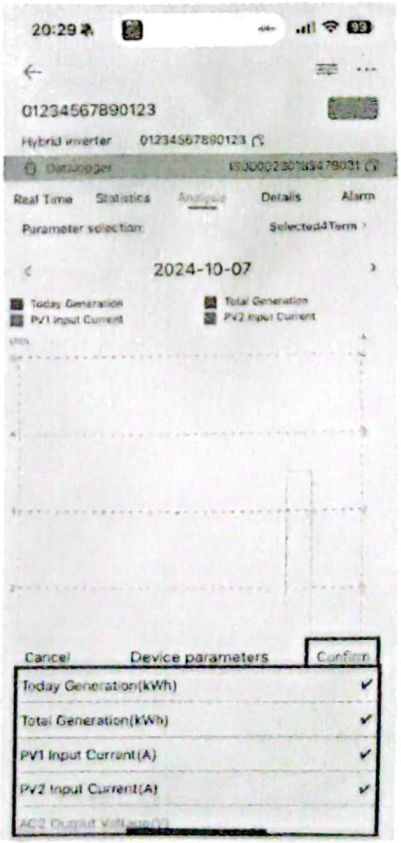
  Total: Click the button to query the annual power generation data.

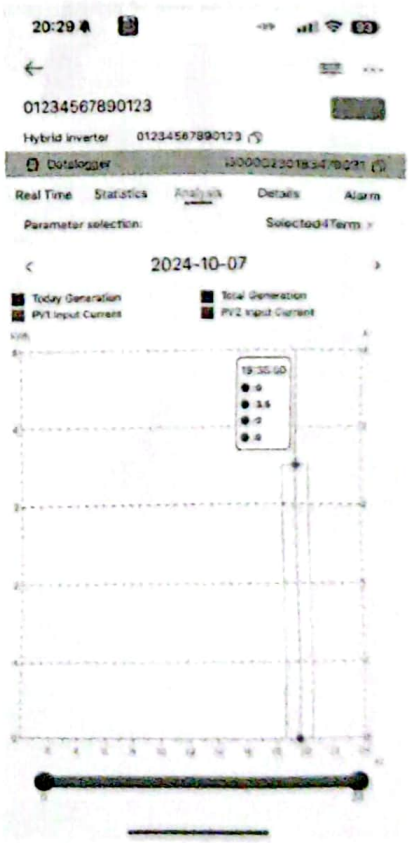
CamScanner



- Click "Analysis" to see the inverter data per hour. Click "SelectedXTerm" to choose the data you want to compare. You can choose up to **2 different units** such as energy (kWh) and current (A).

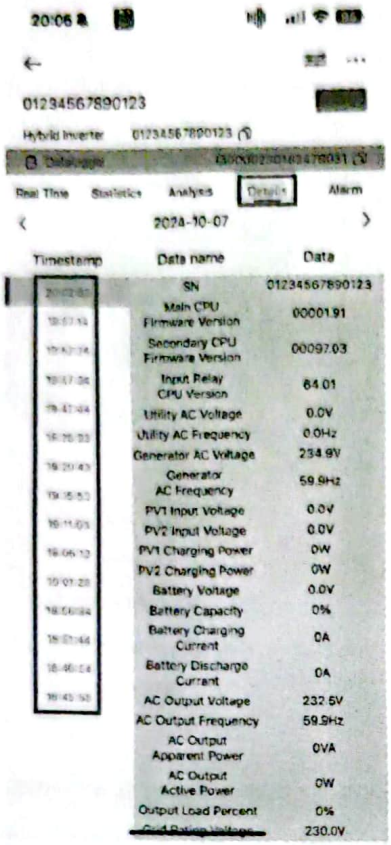




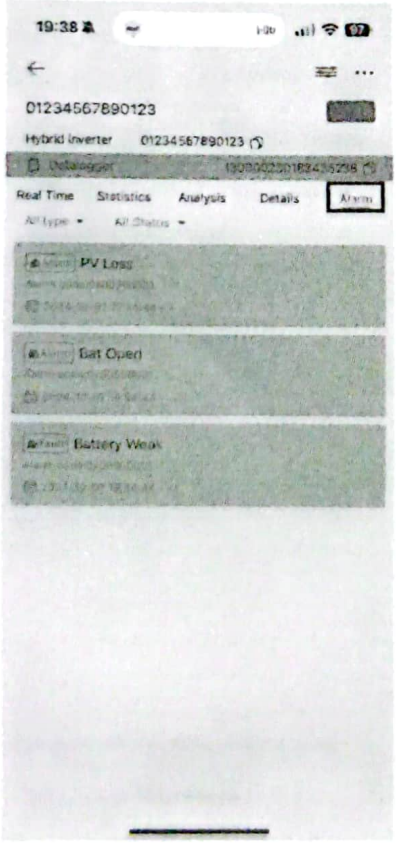


CamScanner

- Click "Details" to see the inverter history.



- Click "Alarm" to see the inverter warning and fault.



CamScanner

2-6 Alarm

- Choose Alarm page to see the warning and fault list of all inverters.

2-7 Me

- Choose Me page to see account information and app version.
- Click "Username" to modify nick name and password, and check if the mail has been bound. If the mail is bound, you can retrieve password through mail.

CamScanner

Customer Service Centres

Karachi
House No B-78, Block H, North Nazimabad, Hyderi Market, Beside Allied Bank, Karachi

Building 21-C, 22nd Commercial Street, Phase-2, Extension DHA, Karachi

House No B-20, Ground Floor, Block 5, Sardar Ali Sabri Road, Gulshan-e-Iqbal, Karachi

House No 4/21, Hashim Raza Road, Model Colony, Near Amin Masjid, Karachi

Lahore
Shop # S-55-R-120-129 Temple Road Adjacent O Mehboob Arcade Near Ghous Bakery, Abid Market Lahore

23/B Block C, Muslim Town Behind Punjab College Canal Road, Lahore

Ho No.12/2A Street No.13 Famous Dargah Street Infantry Road Near Mian Meer Hospital Dharampura, Lahore

Islamabad
Plot No.253 Street No.6 Sector I-9/2 Near Total Pump Islamabad

Rawalpindi
House No 129 Asghar Mall Scheme Ozone School Rawalpindi

Faisalabad
House No 1125/B, People Colony No-2 (Extension), Fawara Chowk, Siddiqia Qabristan Road, Faisalabad

Multan
Building No.2411 Water Works Road, Opp Pani Wali Tanki, Old Berger Paint Building, Behind Qila Khuna Qasim Bagh, Multan

Hyderabad
Plot No 109, Block -D, Unit -7, Latifabad, Hyderabad

Gujranwala
XI-5S-1/F Civil Line, Session Court Road Near Punjab Girls College Campus, Gujranwala

Sargodha
House No 40/4 Bhachar House Jail Chowk Mela Mandi Road Sargodha

Peshawar
Nishter Abad, Near To Al-khidmat Hospital House # 50-A, Peshawar

Rahim Yar Khan
House No 16 Near Shirt & Tie Shop, Street Of Madarsa Akhter Rasool, Club Road, Business Man Colony, Rahim Yar Khan

Sahiwal
Arif Plaza 313, Main Road, Pak Avenue Colony, Sahiwal

Sukkur
House No F-33-4-2-3 Near Dig House Abid Pakwan Center Birage Colony Sukkur

Bahawalpur
House No 13B Street No.4 Muhammadia Colony, Bahawalpur

Sialkot
Murray Collage Road, Bari Plaza, Beside British Academey, Mari Gate Chowk Sialkot

Gujrat
Shadman Chowk Near UBL Bank Rehman Shaheed Road, Gujrat

Dera Ismail Khan
Bunglow No 5, Front Madina-tu-Latif Colony, Grid Road, Dera Ismail Khan

Jhang
Shop No. 41-42 Ittifaq Market, Opposite Darbar Gohar Shah, Saddar, Jhang

UAN: (021) 111-764-111
Email: customer.service@rni.com.pk
www.homage.pk

CamScanner